MAIN CURRENTS

IN MODERN THOUGHT

TWO ANNOUNCEMENTS IN THIS ISSUE

THE FRONTIER OF KNOWLEDGE **Page 47**

A Course of Study in Integrative Concepts in Science, Philosophy, and Education, offered by New York University (Division of General Education), in association with the Foundation for Integrated Education.

THE SUMMER WORKSHOP AUGUST 23rd - 29th **Page 35**

at the University of New Hampshire, preparatory to the new course in Key Concepts.

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VOL. 8 NO. 2

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MAIN CURRENTS IN MODERN THOUGHT

A co-operative journal to promote the free association of those working toward the integration of all knowledge through the study of the whole of things, Nature, Man, and Society, assuming the universe to be one, dependable, intelligible, harmonious.

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"Ah, but a man's reach should exceed his grasp, or what's a heaven for?" — BROWNING

Editor: F. L. KUNZ Associate Editor: E. B. SELLON

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AIMS OF THE FOUNDATION FOR INTEGRATED EDUCATION

The Foundation is incorporated under the laws of the State of New York as a non-profit educational organization. Contributions are tax deductible.

The corporate statement of Aims declares that the Foundation has been established:

1. To collect, create, and distribute authoritative materials which will encourage the development of unified overall concepts in education; to improve the balance of relationships between the physical sciences and the social sciences; to inquire into the phenomena of purposive activity in nature, man and the universe.

2. To assist teachers to understand and use such materials, and to develop an active, realistic, comprehensive philosophy which will communicate to their students the unity, coherence, and beauty of the world in which we live.

3. To remedy, solely by such educative measures, the conceptual and hence the ethical, social, economic, and political breakdown of our times, looking to a peaceful world order.

The members, associates, and staff of the Foundation realize that the progressive discovery of unifying over-all concepts concerning man and the universe is not a task to be performed successfully in isolation from the historical, social, economic, and political context of our times, nor in terms of application less than global.

The work of the Foundation is wholly educational, yet referred constantly to the contemporary scene in all its aspects, no less than to the total available wealth of human experience and knowledge.

MAIN CURRENTS IN MODERN THOUGHT is published quarterly to call attention to significant contributions to learning currently being made by leading workers in the multiple fields into which knowledge has come to be classified. It relates these advances to each other and to the classical and contemporary views of Eastern, European and American thinkers. It is designed to save time for the reader by providing a vantage-ground from which the whole world of knowledge may be surveyed and kept in proportion as it moves toward integration. Its editors assume that the principles of art, the universals of philosophy, the laws of Nature and Man as formulated by science, and the truths of comparative religion, can be orchestrated into a harmonic, meaningful, ethical body of teachings which can and should be made the central core of curricular study in the educative process at all levels of development. In condensing text, square brackets [ ] indicate editorial interpolation. Three dots . . . in the text indicates a word, phrase or passage omitted in the interest of brevity or clarity. Other usages are standard. $3.00 a year. Foreign $3.50. Contributors to MAIN CURRENTS enjoy full liberty of opinion and expression in these pages. *Copyright 1951, by F. L. Kunz, Port Chester, New York,* *to whom all communications regarding MAIN CURRENTS IN MODERN THOUGHT should be addressed. Entered as second class matter April 13th, 1946, at the post office at Port Chester, New York, under the Act of March 3rd, 1879.*

FOUNDATION FOR INTEGRATED EDUCATION

News and Notes

Faculty members and administrative officers responsible for general education programs are invited to write to the Foundation for Integrated Education, 130 East 44th Street, New York 17, New York, concerning the Course in Integrative Concepts in Science, Philosophy, and Education, described in this issue of MAIN CURRENTS.

Inquiries are also welcome concerning the Summer Workshop, August 23-29, University of New Hampshire, Durham, New Hampshire.

The Workshop will open daily with informal morning discussions contributed by various lecturers of the course, members of the course academic administrative committee, and faculty members generally, who have accepted the invitation of the Foundation. In this way a thorough common understanding of the precise intent of the enterprise will be developed.

Afternoons will be kept open for impromptu conversations and excursions. Evenings will be employed as the company may decide.

Families will be accommodated and it is hoped that a spirit of common inquiry and of holiday ease will be manifest at the workshop.

The new Course in Integrative Concepts was discussed in terms of content, purpose, and problems, by faculty members of New York University, Teachers College of Columbia University, Brooklyn College, New School for Social Research and other metropolitan New York institutions on May 31st, after the annual meeting of the Council of the Foundation for Integrated Education. The Kosciusko Foundation was host to the gathering.

Inquiries and suggestions were freely invited by Kirtley F. Mather, presiding, and as freely offered from the floor. Responses and comments were made by Henry Margenau, chairman of the course, and by George Axtelle, William Seifritz, F. L. Kunz and others, in a lively atmosphere of cross-fire comment. The occasion provided valuable guidance for betterment of the undertaking, as well as clarification of its main intent.

The company was unanimous in both expressed and tacit agreement that such an effort was long overdue. One interesting feature was the conviction repeatedly expressed (by Samuel Schenberg, Supervisor of Science Teachers, New York City High Schools, by Professor Seifritz and others) that if the course provides conceptual treatment of recent and fundamentally important advances in each field, over-all integrative processes would naturally be engendered in the minds of students.

To further the integrative gains, a synopsis and source book for the course is in preparation. It will be available at the Workshop at Durham, New Hampshire, August 23-29. It will there be discussed and revised and enlarged, and be available for course students upon registration, as an auxiliary to the lectures.

The source book will contain a synopsis of the main concepts in each field, selections from non-technical reliable sources for the general reader, and separate and rather more specialized documentation from works of expert authority, differentiated from the less technical. In this form, the source book will serve both those seeking and those not seeking credit.

The bibliographies to be included will lead off with small volumes and short items (preferably in each case by the lecturer himself), which may be regarded as essential and constituting a reasonable weekly reading assignment. By covering these relatively short pieces in advance, the auditor of the lecture will be able to make a substantial gain in understanding. By reviewing the material subsequently, he will be more certain to make it his own.

There will be separate reference to standard works, for future reading by those who have special interests; and some specialized and sometimes technical (always differentiated) reading which will take the student to precise authority for some of the most important items.

Utmost efforts will be made, even at this first offering of the course, to ensure the maximum effect of over-all integration. As was pointed out at the discussion on May 31st, this effect cannot be complete in the present state of knowledge; but success must be facilitated where it can be brought off. A major concern of the course is to prevent premature and false over-all generalizations which can be made at the disastrous cost of ignoring vitally important data. The course, and everything connected with it, is intended to encourage a process — and to provide materials to serve that process — which should be an endless delight throughout life.

Inquiries about registrations for the course may be addressed to the appropriate department at New York University. Non-credit students will be registered in the Division of General Education. Students seeking credit will be registered in the School of Education. Details will be found in the central pages of this issue of MAIN CURRENTS.

Recent developments of the Foundation will be broadcast over the Voice of America in August to reach a large audience in Italy. Arrangements for this broadcast are being made by Dr. Giorgio Tagliacozzo of the Italian Unit of the Voice of America.

The International Forum of Zurich, founded by Professor Ferdinand Gonseth, is steadily enlarging its purposes to serve as a center for scientific and methodological discussion for Europe. After some years of private development, it has now received financial and moral support of the government and of academic authorities in Switzerland. *Dialectica*, an international review of philosophy of knowledge, is now the official organ of the Forum. During its four years, *Dialectica* has published articles by Bohr, de Broglie, Einstein, Heisenberg, Pauli, Weizsacker, C. G. Jung, Mitscherlich, Destouches, Bernays, Bachelard, and Gonseth. The policy of the journal includes the publication of materials which confute the presumption that Marxism is identical with scientific thinking. The Forum invites correspondence and contacts with individuals and publishers, with a view to reaching the American public with the proceedings of its Third Conference, of April, 1951. Its address is Postfach 200, Zurich 33, Switzerland.

FOUNDATION FOR INTEGRATED EDUCATION

Review and Prospect

During the year 1950-51 the Foundation for Integrated Education has continued the several activities set going since its beginning in 1948, and has added one more undertaking, namely, a course of study entitled "The Frontier of Knowledge: Integrative Concepts in Science, Philosophy and Education." This enterprise is described in the catalogue of the Division of General Education of New York University, where the course will be offered Tuesdays 8:10 to 9:55 p.m., commencing on September 25th, and continuing throughout the school year. Further information is available from the Foundation offices.

The chief commitments of the Foundation are now as follows:

1. Research by our own personnel into key integrative concepts, and reports on such studies by others.
2. Circulation of the proceedings of the Stillwater Conference, and the continuing development of integrative methodology.
3. Publication of the Foundation's quarterly, MAIN CURRENTS in Modern Thought.
4. Steady enlargement of the circle of active friends and associates, by the above means and through personal visits and correspondence.
5. Shaping the new course in concepts, referred to above. Constituent to the course of study itself are the following undertakings:

   a. Carrying through a workshop at the University of New Hampshire, August 23-29, 1951, for the teachers and others interested in the organization of the course. Appreciation is hereby expressed to the Rockefeller Foundation for a grant making possible this conference between the chairman and the lecturers in the course.

   b. Preparation of a source book and synopsis.

We have thus in three years taken up all but one of the major duties formulated as our avowed program in 1948. Although the research projects have been clearly outlined and followed up by the supervisors of the various projects, they have been limited nevertheless to the funds available. Considerable labor is ahead in developing these activities; all but the following one, however, are in process.

It is to be hoped that the next event, the establishment of an Institute for Integrative Studies, will be achieved with promptness comparable to the other aspects of the Foundation's work.

For this, the Institute, physical premises of our own will be required. The Foundation being established and having tax deductible status, is it unreasonable to expect that some friend will see the need to house this young institute, which promises to contribute so much in insight, and that peace of heart which comes from peace of mind, to our troubled world?

The rounding out of the Foundation's program thus far has been the unremunerated work of the officers and two staff members, latterly joined by a third worker. The Treasurer's report (separately available) reveals the fact that we have pressed forward to our present advantageous position without commanding at any time a regular income, without being able to budget and to plan on known resources, except smaller sums.

This is a commendable achievement. That the Foundation could come forward in so short a time under such conditions is due directly to the remarkable promise it embodies. Its cause has attracted those who — though unable to systematize hitherto its funding — have been ready to risk and to sacrifice time and money until such date as its unique worth is generally appreciated by fund granting institutions. Regularly (albeit modestly) funded and in its own premises, this movement to unite educators with persons of other professions and pursuits, in the restoration of love of philosophy and insight by realistic means, is certain to have a considerable effect upon national and world cultures.

Our operating year runs from June to May. The period under review opened its chief events with the Stillwater Conference in June, 1950. Thanks to the hospitality and encouragement of President Bennett and Dean Scroggs, it was possible to assemble representative scholars to state principles of method important for integration of concepts. Professor F. S. C. Northrop and Professor Henry Margenau, both of Yale, acted as chairmen, and the principals included our President, Kirtley F. Mather (Harvard), Professor Clyde Kluckhohn (Harvard) of our Council, Dr. Muzafer Sherif (University of Oklahoma), and Dr. Claude Hawley, of the office of the Federal Commissioner of Education.

The proceedings are available as a volume, constituting *Issues in Integration,* 1950, and form a methodological starting point for our whole program.

At the invitation of the Chairman and Secretary of Section Q (Education) of the American Association for the Advancement of Science, we offered a symposium at the Cleveland meeting, Dec. 28, 1950. The general subject was "Integrative Concepts for General Education." Papers were read by Professor Kirtley F. Mather (Harvard), Dean Schiller Scroggs (Oklahoma A & M), F. L. Kunz (Foundation for Integrated Education), and Professor Henry Margenau (Yale). They appear in MAIN CURRENTS (Vol. 8, No. 1) and may be taken as exemplifying various major interests in and requirements of our program as a whole.

By invitation and under the chairmanship of Professor Theodore Brameld, New York University, a group of teachers drawn from education as well as liberal arts departments met on December 16, 1950 to discuss practical problems of integration. A second meeting was held on January 20, 1951, with Professor Mather presiding. The following men were present on one or both occasions:

George Axtelle, Professor of Education, New York University; I. B. Berkson, Professor of Education, City College; Theodore Brameld, Professor of Education, New York University; John S. Brubacher, Professor of Education, Yale University; Joseph S. Butterweck, Professor of Education, Temple University; Harry G. Cayley, Associate Professor of Education, New York University; John L. Childs, Associate Professor of Education, Teachers College; Lester Dix, Associate Professor of Education, Brooklyn College; Samuel Everett, Professor of Education, City College; Martha Jaeger, Psychiatrist; Helen Hall Jennings, Specialist in Group Relations; F. Ernest Johnson, Professor Emeritis of Education, Teachers College; F. L. Kunz, Executive Officer, Foundation for Integrated Education; Eugen Kullman, Professor of Philosophy, New School for Social Research; Henry Margenau, Professor of Physics and Natural Philosophy, Yale; Kirtley F. Mather, Professor of Geology, Harvard; Mark May, Director, Institute of Human Relations, Yale; M. F. Ashley Montagu, Chairman, Dep't. of Anthropology, Rutgers; R. Bruce Raup, Professor of Education, Teachers College; Harold Rugg, Professor of Education, Teachers College; Herbert W. Schneider, Professor of Philosophy, Columbia; Edward J. Schoenbrod, New School Associate, New School for Social Research; Edmund W. Sinnott, Dean of Graduate School, Yale.

Out of this conference came the impulse to start the proposed course in concepts which is to take form and substance at New York University.

As this is the first attempt to activate the Foundation's function through oral teaching, it is desirable here to remark upon the problems involved in making the venture successful, and upon the considerations which promise to make it a unique and a necessary development.

If it were possible to staff *present* courses with *future* lecturers, the major problems would vanish. We must try to anticipate the time when there will be teachers of integrative courses who know the major concepts of physics and biology as well as the chief conceptual aspects of anthropology (psychology, sociology, economics, and history), and who are also competent in the elements of mathematics, logic, and other basic skills. Such teachers exist now but they are not commonly available.

For the educational system does not at present prepare teachers who specialize in basic educational skills and concepts and who are also fitted to offer the *materials for philosophizing.* This latter is a task very different from the present duties in a department of education, or even in most departments of philosophy or any other present department of a university. The higher learning produces men and women who may become eminent authorities in the history of philosophy, logic, epistemology, pedagogy and the like. Philosophy and education departments have had in the past to specialize just as other departments have. What is now called for are *materials from all disciplines, conceptualized,* and offered in that form to teachers and to the public at large.

To start the exposition of such materials for such purposes is the business of this course. There is a very general demand that such studies be pioneered as part of a progressive consensus based upon a body of resources, fair to the rigor and meanings of the sciences of matter and energy, and no less adequate in respect to the significance and value of the sciences of sentient and functional living creatures, and to conscious man and his cultural works.

At this stage of man's educational development, a course such as we offer has therefore to be staffed by specialists who are willing to make their own discipline's concepts known without framing those concepts in any one firm philosophical outlook, current fashion, or personal synthesis. That is, they have not been asked to agree in advance to this or that philosophy, whatever may be their own predilections. They are not to be taken as advocates of materialism, mechanism, transcendentalism, reconstructionism, essentialism, or any other formalized point of view. Their known or assumed philosophical position is not what they intend to expound. Their sole function is to report interestingly and usefully upon the major comprehensive or key concepts of the field they work in. We have been fortunate enough to find distinguished scholars in major fields who are willing to do their part to initiate this inquiry, as the announcement shows.

The course lecturers are, however, a scattered group, and they are to teach but once a week in this first pioneering venture. Obviously, complete or even marked success along such lines lies in the future, in sustained work to be done through an Institute for Integrative Studies.

But much can be accomplished even now, and beginnings must be made.

The teachers in the course and various professors and instructors and adults in posts of responsibility, friendly to the venture, will meet daily in a workshop at the University of New Hampshire, August 23rd to 29th, to develop the series. They will have in their hands the first draft of a synopsis and source book for the course (in preparation). The members of the workshop will help the chairman and his colleagues to shape the series.

The result promises to be something novel and enduring. For the first time many basic meanings of major sciences will be made known by experts to professors, instructors, and teachers-in-training, so that they will be able to evaluate the wealth of new insights offered by recent and contemporary science in terms of educational significance.

The course is to be repeated and improved from year to year. Through it the Foundation hopes to assist teachers and college and university education departments to offer improved insight into the relations between the sciences and the humanities as the very core of the cultural experience. Its formulation has been the chief event in the Foundation's activity for 1950-51. Particular thanks are hereby expressed to the many colleagues who have made it possible.

Two members of our Council, Professor Margenau and Professor Montagu, participated in the spring meeting of the New Educational Fellowship (formerly the Progressive Education Association). This meeting was particularly devoted to recognition of thirty-one years of notable service at Teachers College, Columbia University, by Professor Harold Rugg, who is now retiring from that post. At the request of the chairman of the afternoon, Professor Brameld, the purposes and interest of the Foundation for Integrated Education were exemplified and described by Professor Margenau in his discourse, which was received with conspicuous signs of interest.

F. L. Kunz
Executive Officer

Available literature:

"Purpose and Program"—Kirtley F. Mather

Issues in Integration, 1948 Proceedings of the First National Workshop)

Issues in Integration, 1950 (Proceedings of the Stillwater Conference)

"The Cultural Constitution of Man"—F. L. Kunz

MAIN CURRENTS in Modern Thought—quarterly journal of the Foundation

Description of course "Frontier of Knowledge: Integrative Concepts in Science, Philosophy and Education"

Brief announcement of New Hampshire Workshop
Treasurer's Report

"One fact stands out in clear relief. No consistent, clear-cut philosophy of American higher education has yet been formulated. The British conception which largely dominated up to 1850 has been rejected. The 19th-century German model in research and graduate work has been generally adopted, but the fundamental purpose of higher education as a social enterprise has never been clearly stated. That is the reason for the current confusion."—Oliver C. Carmichael, President, Carnegie Foundation for the Advancement of Teaching, in the Foundation's 45th annual report.

THE CULTURAL CONSTITUTION OF MAN

F. L. Kunz

Foundation for Integrated Education

I.

The world crisis originates in a single natural demand made upon humanity but neglected, in varying degrees and ways, by its constituent societies. The race is required to recognize — and to live out — its latent solidarity amid its external diversity. We are called upon to love one another, for reasons that are radical: that is, reasons arising from the nature of things, especially that natural potential solidarity itself. Our current educational inability to trace out the cosmological compulsions to human brotherhood and teach them with competent authority constitutes a grave failure.

The omission is not to be charged against any one discipline. In their several ways anthropology, sociology, biology, and psychology give specialized theoretical support nowadays to the unity of the human world. They declare that man is physically one species. But this is not enough for education. The scientific disciplines have been unable to disclose unitedly the pattern of the human cultural constitution in such a way that juncture can be made with aesthetic, ethical, moral, and inherited religious forces. Hence the question here discussed: Is mankind molded inwardly upon a system as specific as is the basic biological organization? Over and above the animality in which the individual is enmeshed, what higher constitution must education serve if men are to live together progressively in love, in truth, in beauty, and hence in peace?

II.

Any answer to this perennial — and now truly urgent — question must undoubtedly start with two most important of all considerations: first, consciousness of self, as it occurs in man; and second, conceptual thought. These paired features of human nature make possible the transmission of culture.

Common experience shows that in unselfconscious early years we learn through example, training, and the like. In later life we may begin to work upon ourselves. Such deliberate growth in knowledge may properly be called education. If self-development, self-reliance, and self-responsibility are not evoked, education has not succeeded.

This, the appearance of consciousness of self, introduces education into the very center of the human situation. Second, cognition is conjoined in man with conceptions, classifications, abstractions, generalizations. The combination ensures selectivity; and hence it guarantees that our larger enterprises are undertaken only with due reference to the past. Thus cultural and technical gains are preserved, in the only way possible, by rational reduction of particulars to generals.

Our captivity in the stream of culture implies that any important advance in knowledge may have to take its start over-burdened by the errors of the past and the inertia which mankind commonly displays toward important novelty. Thus we progress laboriously and, too often, with pain and struggle. But we do move. Evolution stirs us, even if we are unwilling to bestir ourselves.

An inquiry into the universal characteristics of the cultural constitution of man, like any other work intended to add strength to the foundations of learning, is itself subject to the necessities of the human situation. That is, we must start with an appeal to history.

It is surely safe to assume that whatever man has in his cultural works persistently or recurrently declared himself to be, that much at least he indubitably must be. For millenia he has continued biologically much as he is, equipped with one nose, two eyes, and a tongue in his head, not possessing wings or mandibles. Conditioned by these, his own enduring features, he goes on through the ages, neither angel nor ant but human.

Conversely, then, let us say that in whatever ways he has over and over expressed himself culturally, in those ways he must be endowed with a persisting potential cultural constitution. The nurture of society is required to make the potential active. Education may fail in given times, places, and degrees. But there is the potential ready for use. Asserting so much, we can go on to determine upon evidence the relation of the cultural potential to the patterns supplied by animal biopsychology, in which (we repeat) one's truly human nature is so strangely imprisoned for its better fulfillment.

III.

In their broadest classification, there can be little doubt as to our chief cultural characteristics, historically speaking. Early and continuing records show that the race has repeatedly expressed itself in a variety of arts, sciences, philosophies, and religions, first elementary, and then growing more and more sophisticated.

The common inherence of these moods in a superior psychic organization (what Sir Henry Head calls high level functioning) is seen in the fact that in earlier and simpler and also in some later and more complex societies, those four cultural moods were closely knit and mutually serviceable. All the resources of Periclean Greek art, philosophy, religion, and science together shaped Attic life and works.

Cultural anthropology has also shown us that the arts of early man, as in the cave paintings of Altamira and the Dordogne, are comparable and even superior to some more mature art in purity of feeling and excellence of expression. It was only the materials, the techniques, and the experiential resources which were less rich. The mood was there just as the painter's hand was there to express it. Such moods, and such responsive hands, persist in us today.

No less remarkable are the items from science. We are slowly becoming appreciative of the high state of old Chaldean geometry and ancient Indian algebra. Willy Ley not long ago reported that identifiable remains of wet carbon-zinc electric cells (identical with the old Leclanche cell) have been found in Chaldaic ruins. These are said to account for the occurrence of the skill of gold-plating extant when Europeans regained access to Baghdad. The accomplishments of Egypt in practical chemistry, of India in astronomy and medicine and surgery, of China in agriculture, are all well known. The prevalence of philosophy and religion through the ages is no less familiar.

Our present concern is not with relative merits, but with the simple fact that to express himself man has needed at all times the arts of decoration, communication, and the like, and science, philosophy, and religion no less. Since he needs them now, it is therefore fair to say that all four moods, at least, persist in our cultural nature. That much is certain. Are these the total?

IV.

An answer to this question is of peculiar importance to human welfare in man's present desperate plight.

I submit that history shows us that a fifth cultural mood, frighteningly neglected, has pressed through man for expression in good societies and in favorable times.

This is sport. The term is here used in the sense of the general need to participate actively in contests according to rules fairly made and scrupulously observed, particularly those efforts beneficial to the body and the emotions and—as in chess—the mind. We are not speaking of professional baseball, commercial football, horse or dog or turtle racing, cockfighting, cricket-fighting, or bull-fighting, where among us the thousands exercise only simpler emotions, elementary reason, and their pocketbooks, while the few profit in sundry ways.

We concern ourselves here solely with those sports which are truly based upon fair play, and exclude those wherein man overpowers relatively helpless — or even the most dangerous — animals by means which give the beast small chance. Sport has had high value in England, in India, and, long before Europeans arrived, in parts of the Americas. Peruvian so-called savages were superior to some of their perfidious conquerors. How long soccer (with a wicker ball) has been played in Burma (let us say) need not be estimated exactly.

V.

Culturally, what does sport mean? Study of Greek society alone is quite enough to show the connection of games first with civil ardor and then with martial courage.

To illustrate our theme, we may remark upon the extent to which American institutions most dear and necessary are being poisoned by the failure of the sporting spirit, the decline of the sense of fair play, and the substitution of Kleig-lighted orgies of denunciation, in the style of early Fascist Germany and of the French Revolution. What degree of elementary justice is there in Congressional immunity as we see it sometimes used nowadays? Are not court functions being admittedly usurped and impaired by various agencies, including the newspapers? This destruction of constitutional government is bad enough, even if it can be dismissed in itself as a temporary necessity. But permanent evils come of it. Few are effectively roused by smearing, though many are frightened. Legislators whose souls are revolted by these injustices are punished for speaking out. Is is not fair to conclude that the disappearance of honest indignation in so many aspects of our nation's life — for it is indeed rare — is connected with the decline of the sporting spirit?

No one can possibly deny that the founding and constitutional papers of the United States aim at that kind of justice which rests upon the sporting equal chance under known rules. But the Constitution needs courageous men if it is to be operative. The Freedom Train will appear in retrospect to have been a funeral cortege if we go on to embalm the rules, and to abandon their practice. Art is not achieved once and for all time but by continual individual striving. So also with science, religion and philosophy. Constant effort is needed. In our national life, likewise, it is quite impossible to preserve the sporting chance in documents.

If fair play is to come back to us, teachers will have to do their part in restoring it, by asserting their right and duty to embody in themselves and express in their lives the sense and practice of justice, but also by a neglected professional duty here under discussion.

For the foregoing illustration is not to be taken as a partisan political attitude, or in any other narrow sense. We are concerned with a basic

feature of human spiritual health. Today we have a society so mechanized, so over-organized, and so newly panoplied with a bristling array of gadgets and machines, that the individual has less and less of a fair sporting chance to live the good life, which is something far beyond conformity in order to earn a living. Today he has little hope of getting at the real truth of his own worldly circumstances. For even when the news is fairly reported and not re-written to bias, the mass media make little effort to relate it to fundamental facts. Hence the citizen does not really know the rules of the game. He believes them to be as he sees them written, but he is measurably mistaken. All this is now so luridly lighted by events that it needs no argument.

A majority of adult citizens can no longer be adequately reached, as the instruments by which to inform them promptly are devoted primarily to ends other than basic information. The following question therefore is now a matter of national survival: How are educators to ensure that there are enough young men and women coming on into adult society, in whom the sporting spirit and civil courage persist strongly enough to strengthen them to stand up for simple honesty and elementary decencies, hence to fortify us nationally by educational means? This cannot be achieved by economics or sociology or other special studies. Education has to enlighten the student not only as to his worldly but also as to his cosmological situation, so that to him faithfulness to truth and justice are seen as faithfulness to his true nature, determined in turn by the nature of the universe itself. It is in this respect that the system fails: We do not teach any worthwhile cosmology with a voice firm and united. Is the universe itself ordered, fair, just? Is human life worth while? Mere individual affirmations of convictions about these questions are insufficient. Education has to supply the evidence.

VI.

We are now at grips with the central issue. The problems of our times arise from the disproportion, the disordered interrelations, of the several aspects of the cultural constitution. Even when given proper place, art, philosophy, religion, science, and sportsmanship do not speak out of one known background of conceded truths about the universe and ourselves. In many quarters these noble cultural needs in man are debased until institutionally they actually become his enemies. A philosophy which proclaims that the world is chancey, senseless, and basically disordered, quite naturally and by its very nature sanctions injustice. A science whose successes are limited in the main to the insentient, keeps on dragging even its finest expositors down by its chill and even brutalizing narrowness, no matter how much and how long the individual here and there may resist this pressure by flight to faith. A religious orthodoxy which assents by its very nature to the penalizing of scapegoat victims for the benefit of its own zealots proclaims in vain words the equal rights of men. Arts in an age of cultural confusion become avenues for the relief of pathological psyches even though we must praise them for their search for new freedom and new modes.

Hence the questions: Are the cultural moods organs in one and the same human psychological system? If so, then we have to study this total potential, and ask: As a *system,* what is it like? We have already asserted that one important activity has suffered a decline as a cultural mood. By systematic arrangement of those features generally admitted, we may come out with a rounded-out awareness of the major elements of the cultural constitution. This is needed if we are to begin the devising of a balanced regimen for man as a spiritual species instead of the present over-rich diet of sensationalism, vocationalism, and specialism, provided (in substitution) for the Freudian psyche, and the material body, which we share as complexes and organism with the other animals.

Let us now essay an answer, however sketchy it may be.

VII.

It will doubtless be immediately agreed that religion and art are essentially on the affective side of human temperament, or tend (at the very least) to proceed by means of feeling first. No one composes music successfully as yet by writing a series of wave equations and then applying Bessell, Laplace, Legendre and like functions to building acoustical instruments, hoping to come out with a musical score. The scientific aspect of music has its place, of course, and if the late Joseph Schillinger did help the late George Gershwin to freshen his creativity, so much to the good; but one does not manufacture creativity. Likewise the very nature of religious experience is its charge of feeling, even if this be the low emotion of a fanatic; most certainly if it is the inward serenity and peace-seeking of the quietist, the devotional Godward surge of the cultured pietist, the deep resolution of the martyr.

It will doubtless be readily conceded, that on the intellective side stand science and philosophy, primarily reasonable.

Thus we start with the simple dichotomy: *affective* moods, religion and art; *intellective* moods, philosophy, and science.

VIII.

But there is a second difference among the moods, a little less evident, which leads to a cross tabulation. Philosophy is most certainly concerned with grand generalization, especially in its metaphysical ends, and is thus that function of the cultural organization charged with conceptualizing. Causality, being, and the like are its higher

concerns, as it looks deeper toward final reality, not outward to organize external experience. As to science, it is possible to have a worthwhile growth of it in terms which start with the concrete and objective (and where else does science start?) and go no higher than law and hypothesis. No doubt the final triumph of human reason really begins to appear when the science of the times or of the individual reaches up so high into the abstract that its fusion with philosophy and hence metaphysics is possible. Then we have a golden age, or a glowing genius, in terms of mind in the main, though right feeling must also support the achievement.

A like vertical ordering of religion and art is evident. Genuine religious feeling, even if it be naturalism, is transfused with a specific sensation of a lower and limited entity, a self, at one for the time being at least with a higher and greater presence, a larger whole. Every mystic, poet, sage, and seer of acknowledged rank has reported this, an experience akin — but nevertheless additional — to the warmth of personal love expressed laterally to friends, kin, and fellow-man. In artistic expression, however, as in science, there is the need for a personal mastery of a medium or an instrument, and in that contest with stubborn reality the artist must necessarily bring to bear the force and honesty of his own personality. Hence, even a realistic painter is ever projecting himself along with his subject, and we recognize his presence in all his works. We call it internal evidence of his temperament.

Thus there is this more-abstract and more-concrete relation on the affective, as on the intellective side of human cultural experience and activity. No doubt on the affective side, as on the other, high moments and great persons appear, wherein the clarity runs from the highest level of absorption to the most concrete level of mastery of materials and instruments, including mastery of self as an instrument of something nobler than personality. There are also the great enterprises of adorning an Acropolis or building a cathedral, when religion and beauty call all men to be greater as groups than they are as persons; but are not science and philosophy at work here also? A third dimension thus enters into the scheme when all the cultural moods unite in social effort. Ignoring that for the moment, we have this system:

⇧	On the affective side:	On the intellective side:
Toward the abstract real	RELIGION	PHILOSOPHY
Toward concrete reality ⇩	ART	SCIENCE

These four familiar moods are cross-connected in every way. There is philosophy in itself, with an upper goal of reality in metaphysics. There is a philosophy of religion, namely, theology; of art, or aesthetics; of science, as we see exemplified in a doctrine such as evolution, which most biologists accept, as a philosophical concept. Conversely, there is a science of art, aesthetic measure, a much neglected weapon for criticism and perfection of skills. There have been moments in human achievement when there have been sciences of religion, a notion so alien to the habits of our times as to sound simply fantastic. But why should there not be specific healthy formulae of higher living according to the dayspring and the twilight, the spring and the autumn, the dawn of an age and its sunset, as we have right rituals and hours for bathing, exercise and sleep?

IX.

It is now necessary to suggest that sport has an appropriate place in the scheme.

This mood, when truly experienced and properly valued — unconfused with the lust for vicarious risk, or a dreary degradation in simple slaughter — partakes of the nature both of art and science by reason of the physical activity required in so many of its healthier variations. Thus it may be placed in a new category, neither intellective nor affective, but *active,* between art and science. It is quite as near to physical reality as they are, sharing with them the use of instruments, the conquest of materials, and even the conquest of self, in the finest forms. In fact, some sports are essentially dependent upon physical contact: Rugby football, wrestling, boxing.

Therefore we place sport on the very edge of sheer personality, even physicality, not meaning thereby any diminution in its rank, but indeed to emphasize realistically its truly vital nature, not only as to health, but total well-being.

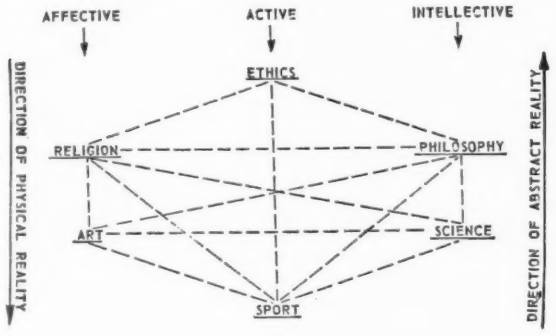
⇧	On the affective side:	In the active center:	On the intellective side:
Toward the abstract real	RELIGION		PHILOSOPHY
Toward concrete reality ⇩	ART	SPORT	SCIENCE

X.

What, then, is the abstract correlate of sport, as religion is related to art and philosophy to science?

The answer to this question seems evident from this discussion. It is ethics, but in a special sense, not of artificial rules, nor of conclusions drawn

from some society, nor from inherited ideals alone. The ethics we need are those which consort no doubt with the best in religion and philosophy, and are true to science and to beauty, but also rest upon or arise out of the midst of abstract reality, the realms of universals in which the cosmos arises. How shall there be any justice which is in discord with this matrix, the universe in which we and our societies evolve? In simple societies small demands are made upon education as respects cosmology. There is so little to put together in such a social order. But how can any complex society prosper if the basic operative principles of the natural universe in which society occurs be unknown and hence the true nature of man, as part of that universe, be unperceived or suppressed in his education? Can an intricate society such as ours run along solely upon the apothegms of past ages, which knew not this complex? True as those dicta may have been for their times, and true as they now are, how are we to apply them to our interdependent world scene? Our American problem is not one of good *will,* but of good *understanding.*



THE GOOD MAN IN A GOOD SOCIETY

It seems clear that we cannot re-introduce vital impulses of fair play, piety, aesthetic emotion, and the like effectively into our society through the educational system until the normative generalizations implied in our own scientific gains are explicated and made available to the teacher. Materially our society has been made possible by the products of those sciences; and it is being steadily mis-made for lack of formulation and teaching of the concepts which made the products possible, especially such concepts as supply a cosmological background which should enrich religion, ethics, and philosophy. Utterly new notions, such as space-time, are charged with many meanings scarcely comprehended except in specialized connotations. Because the conceptual contributions of science have been held back from the cultural stream, the discipline has been reproached for disturbing and even degrading us. For this not science, but education is responsible; and it is useless to ask the church, the art school, or the football coach to perform a function so far from their habit.

The immediate task for higher learning therefore is to determine by research what science really means. The second, the perennial responsibility of education, can then at last be discharged in terms of modern man and of a complex technological global society: to restore the free circulation of the life-principle of the human soul, its balanced normative regimen, drawn from *all* the cultural disciplines vigorously and impartially pursued.

Here is the educational task of this decade and of our generation. No duty is more urgent, or more fundamental. Foundations should be spending more freely on these studies, and universities allocating adequate time to instruction herein.

For a system of higher education which fails to interpret, serve, and enrich the entire learning experience in terms of the whole cultural range, well balanced and consciously articulated, is not education for human brotherhood, however successful it may be in vocational training, physical skills, and other ways. It fails to recognize and sustain what makes men human, and gives them a humanity in common. Such an educational failure is lethal to a world democracy, for it destroys those forces in man — civil courage, hope, insight, purpose — which are worth striving for, and make imprisonment or death in good causes noble and welcome. It restores slavery, not with the lash, but by means of the imprisonment of the mind. Private prejudices replace candor. Sharp practices, mean advantage, half truths, and "the Hitlerian big lie" — no matter where it occurs — take the place of fair play. A society so deprived will sicken the more, the richer it grows in things material; and it must take at last the road of physical might and death in its prime, as in the end all such overphysicalized societies have historically gone on to self-extermination.

The American educational and scientific agencies have to rouse themselves to do this great work. They now constitute our best institutional hope of restoring ordered and constitutional government of free men to our nation.

"A college education is not a quantitative body of memorized knowledge salted away in a card file. It is a taste for knowledge. A taste for philosophy, if you will. A capacity to explore. To question. To perceive relationships between fields of knowledge and experience."

—A. Whitney Griswold, President, Yale University

PHILOSOPHIC FOUNDATIONS FOR THE CURRICULUM*

Malcolm Stewart

Illinois College

I have been given the opportunity this evening to discuss the union, or integration, of my own field, philosophy, with any and all other fields — physics, chemistry, economics, or any of the basic physical or social sciences. To my mind, such a union is not only possible, but necessary. While I have listened to the various remarks that have been made during this conference, I have been struck by the fact that the whole basis of our discussion has been philosophic. No matter what subjects were broached — and they have been varied — we have been engaged in the field of philosophy, whether we knew it or not.

Thus it seems to me that this movement for integrated education consists really of an attempt to bring a philosophic foundation back into the curriculum. Today philosophy exists as a separate department within a curriculum, but actually no such boundary lines can be drawn. There is a philosophy of every single subject in every department, and each man who seriously seeks out the limits of his own field is a philosopher.

Philosophy actually has no formal definition. I like to think of it simply as a particularly stubborn attempt to think clearly. Philosophy, you know, has been facetiously defined as a blind man in a dark room looking for a black cat that isn't there, and in a way that is a good definition, because after all we are blind. We are limited physically and psychologically, and the area of our knowledge is narrow in scope. We are groping in the dark for something that is extremely elusive. Sometimes we find that the thing we have been looking for isn't there at all, but even such a negative discovery is an advance in knowledge, for it shows us when we are on the wrong track. Thus nothing can be lost, and much is to be gained, by seeking for more than that which we actually have.

It has been said by a number of men that the factor which makes the greatest difference in any individual and in any civilization is the attitude, or the belief which is held concerning the universe as a whole. The idea was set forth by Albert Schweitzer early in 1923 in the introduction to his *Philosophy of Civilization*. A similar position was taken by Arnold Toynbee, when he said that civilizations are actually only the handmaids of religion, and by Northrop, who points to the epistemological foundations in his *The Meeting of East and West*. If we can penetrate the surface of a culture and find out the beliefs of its people, we will at least be able to see the direction the culture is taking, how it is developing, and to understand what beliefs may be essential in order to preserve that particular civilization. Therefore, the work of the philosopher is of fundamental importance at the present time, insofar as he is trying to understand the causes of current problems and to find out what underlies the whole structure of our thinking and our beliefs.

The philosophic method, which, as I have said, is simply the attempt to think clearly and consistently about a problem, can thus be applied to any field. Every subject matter has three phases. First of all, there is the necessity of formulating the problem. Second, there is the method used to obtain the solution. And third, there is the material which can be brought to bear upon the problem. Those three things are essential.

As regards the formulation of the problem, we can start almost anywhere. We can find a problem within a particular field — whether it be in economics, psychology, or physics — and can be content to find the solution to that problem within the area with which we are working. We have to do that all the time. But on the other hand, we must continue to press that problem on back beyond the boundaries of the specific area, because there are foundations, origins, of the problem which occur at a more universal level, and without a consideration of these the problem can never be fully understood.

So, for example, the scientist may begin his search with the postulation of the existence of the physical universe. That is all right, because he has to begin somewhere, and since the problem of the ultimate beginning of the universe itself is beyond his ability to handle, he must postulate its existence. However, if we are honest with ourselves we must realize that this problem of origin is one which is extremely insistent. We face it again and again.

In order to solve any problem we have to analyze it, so that we may discover its elements and trace out the possibilities that may exist within it. In this particular problem of origin we have an alternative: either the world was created or it was not. If it were created, we are faced with an aspect of existence which goes beyond our experience, for so far as we know, every event has a cause. Creation of the earth implies an uncaused cause, which is something we cannot grasp. On the other hand, if the world were not created and is therefore eternal, that also goes beyond our experience, since nothing within our knowledge has ever existed without cause, or lasted forever.

*From an address at the Montecito Workshop, 1949.

Thus, in this particular problem we have reached the limit of what we can test within the range of our experience. Anything further must be of the nature of a belief. I think that is the only word we can use. In considering a problem of that sort, we must begin with some kind of belief, therefore, as our basic element. The scientist himself, if he is honest, will admit that he begins his studies with an assumption. He cannot prove what has happened in the past or what will happen in the future. In order to gain workable hypotheses the scientist makes an assumption about the past, and then, so that a generalization can be made, considers it proven. In this way science itself has come to rest on certain assumptions from which it proceeds to generalizations within the realm of probability. This fact needs very definitely to be pointed out, particularly to students. The basic scientific assumptions must be carefully analyzed, for if we are to keep the whole picture in focus, we must see clearly what they are.

These basic considerations have a certain universality, in that they are reached, eventually, no matter in what area the problem is formulated. Through them, in fact, the unity we seek may be attained.

Next we come to the matter of method. Here again we find a certain unity, because, after all, the process of reasoning is pretty much the same everywhere. There are, however, specific variations of method. So far as the exact analysis of our method is concerned, whether we follow Bacon or Descartes or Dewey or some other authority in the field of methodology, we must be clear as to exactly what procedure we are following, for there are many implications as to method. The difficulty lies at the point where we take a single set of assumptions and try to explain everything in its terms. If we say that the only thing that exists is the material universe, and the only possible method of gaining knowledge is the inductive method, that is all right so long as we are fully aware of the implications of that position. Through it, we are driven to the necessity of explaining persons in terms of things, and things in terms of mass points. This method is perfectly correct in certain areas, but to carry it to extremes is quite dangerous.

Therefore, I am inclined to think that we need to emphasize analysis of the method of thinking far more in our curriculum than is customary today. We spend too much time on subject matter, and too little on the attempt to demonstrate to our students how to think. I am reminded in this connection of a story about Whitehead (unverified, so far as I know, but none the less characteristic). It is said that he almost lost his first job because he insisted on giving A's to the students who thought a problem through even though they didn't arrive at the correct solution, and D's to those who accurately reproduced the material in the textbook.

It has been said before that we forget subject matter, but that the method of handling the subject matter which we learn — the ability to take hold of problems and see them in their entirety — is something we never lose. It weaves itself into our very personalities. It becomes the basis of our thinking. Thus to the matter of belief, which is so fundamental, we add that of method, which is equally fundamental.

Third, we come to the question of what material should be brought to bear upon the problem we wish to solve. To begin with, we really have no idea where the answer may be found. We cannot say, for example, that the problem in economics which faces us can be solved wholly in that field. Before we are through with it we may well be carried into geography and psychology and government. We have to be able to take our subject matter as it is needed. That leads me to say that possibly one of the implications of integrated education is that every faculty member should not only be well grounded in his own field but should also be sufficiently acquainted with a wider area so that he will know where to go for the material he may need.

Thus one of the most basic tasks of philosophy is to show, first, what the problems are (because students today know scarcely anything of the problems that actually exist), next, the method whereby they can be solved, and last, the subject matter which will apply.

Philosophy has two essential phases: it is analytic and it is synthetic. There is a philosophical technique of analysis of a particular area which is much like research in any other field. Strict and careful analysis is essential in order to find out if the questions involved are valid. On the other hand, an important task of philosophy is to bring the whole range of problems together within the kind of structure I have been outlining, so that they can be seen whole, as a unity.

There is one thing more which must be considered if one is to understand how philosophy can be most useful. That is the relationship between the qualitative and the quantitative. To illustrate, let me take a specific problem, that of freedom. In considering the theoretic problem of freedom (and possibly in considering any problem), we are faced with the necessity of making two fundamentally contradictory assumptions at the same time. In the first place we have to hold to a belief in causal uniformity, and in the second place we have to hold to a belief that persons are responsible for their own conduct. In other words, we must believe in causality, and in morally responsible persons. To characterize persons we use a special vocabulary, which includes such terms as will, interest, action, desires, purposes, etc. On the other hand, in connection with causality we must have regard for law, determination, structure, order, etc. Our practical problem is to reconcile these two basic approaches.

If we are to analyze the theoretic basis of freedom, therefore, we must first of all make an analysis of causality, the mechanical sequence in which the effective conditions are determined by preceding events. We must follow the concept of freedom through the field of applied mechanics, where causality operates, into the psychological and social realm. The problem is one of reconciliation of the two aspects: the personal with the structural or lawful. Such problems are perhaps never solved in a final sense, yet the effort to mediate between these two aspects may give us a clue or key to the operations of human life.

I should like, at this point, to make one remark concerning the field of religion. To my mind, there is little if any separation between philosophy, religion, and science. Though growing in different directions, all originate in at least one of their aspects at exactly the same point: the desire to find explanations. Whether one is a scientist looking for an explanation in a particular realm, or a philosopher or theologian attempting to find the solution to ultimate questions, he is still seeking explanations. It seems to me that such a relationship points to the basis of mutual understanding within these fields. Within religion itself, when we consider moral questions of the relation of what is to what ought to be, we are again returned to the distinction between the person and the structure — the same basic question that arises in considering the theoretic problem of freedom. Philosophy, science, and religion are supplementary rather than antagonistic.

Perhaps one would say that this way of thinking is philosophic. If that is so — and I believe it is — educators should agree that philosophy is the essential core of the curriculum. The fundamental, unifying core. Recognition of this fact would indeed be highly effective in helping to produce an integrated curriculum. Within the social science division, for example, the major unit of study, around which everything else centers, should be a philosophy course in which are brought together the basic aspects of the problems, the methods, and something of the subject matter in all related fields.

I have been working on such a course, in which the person, the individual, is taken as being the center of the universe. This person has experiences within the realm of politics, of psychology, of economics; he has experiences of the physical universe and so on, through every aspect of the curriculum. When this attitude is taken, the individual can no longer say that this thing is foreign to him or that thing separate from him, because everything finds its location within the person himself. We can show how all problems grow out of the individual's experience in the physical world.

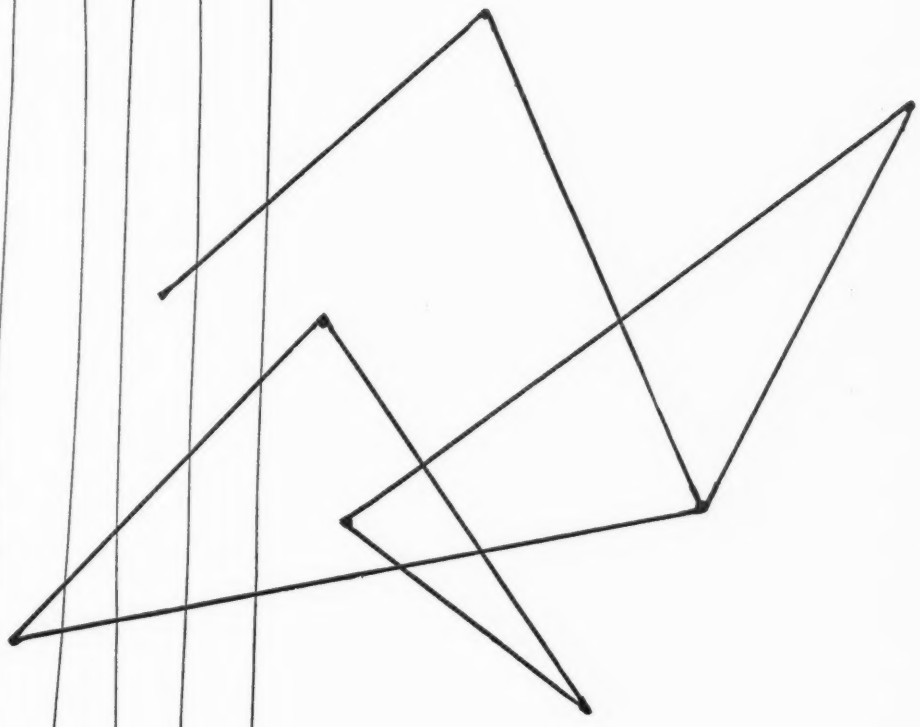
The proper development of such a course as this needs the cooperation of the psychologist, as well as the sociologist, physical scientist, etc. May I say here, parenthetically, that the principal difference between philosophy and psychology is that psychology is a science and therefore strives to be quantitative rather than qualitative. It attempts to define qualities in terms of quantities as does any science. So that when one says that psychology first lost its soul and then lost its mind and then lost consciousness, one is not merely being facetious. Those terms cannot be quantified, and therefore cannot properly be considered from the scientific point of view. If we are to view each problem as a whole, the quantitative as well as the qualitative, and the relationship between the two must be considered.

Such an introductory course as this should occur fairly early in the college curriculum. I should like also to see in the senior year a philosophy course within the particular subject that the student has concentrated upon. Thus the scientist would have a course in the philosophy of his science, the language student a course in the philosophy of language, the history student a course in the philosophy of history, and so on. The purpose of such courses would be to bring together the relationships, the strength, the weakness, the limitations of the method within the subject, and then point to the interrelationships and problems which exist.

Actually, as I said at the beginning, we know very little in any field, and this fact is almost of final importance in educating the student to pursue his search for knowledge and understanding. All fields need the technique and aims of philosophy if they are to accomplish this vital purpose. That is why philosophy should be brought back into the curriculum as the core of the whole process of integration.

". . . How can a man think if he doesn't know? Charles Darwin gathered biological facts for twenty years without seeing any binding relationship. Then one day, while he was walking through an English country lane, the idea of evolution suddenly came to him. That's what thinking is . . . the flashing emergence of an idea after facts have been mulled over a long time. Even then it is probably wrong. . . . Thinking is a highly dangerous performance for amateurs. You cannot think well with hopes and fears and ignorance, but only with a well-trained and well-filled mind."

—W. E. McNeill, at Queen's University Convocation



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2.	Oct. 2	Mechanism and Space-time Henry Margenau
3.	Oct. 9	The Breakdown of Mechanism, the World of Quanta Henry Margenau
4.	Oct. 16	Directives Implicit in the Structure of the Earth Kirtley F. Mather, Professor of Geology, Harvard University
5.	Oct. 23	The Stars, Their Natures and Behavior Harlow Shapley, Director, Harvard Observatory, Harvard University
6.	Oct. 30	Summary Henry Margenau
7.	Nov. 13	The Chemistry of Living Matter Joseph S. Fruton, Professor of Biochemistry, Yale University
8.	Nov. 20	The Living Mechanism W. Seifriz, Professor of Botany, University of Pennsylvania

2nd term

Among the lecturers of the 2nd term will be:

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10.	Nov. 27	The Path of Life Through Geologic Time Kirtley F. Mather, Professor of Geology, Harvard University
11.	Dec. 4	Symmetry in Living Nature F. L. Kunz, Foundation for Integrated Education
11.	Dec. 11	Environmental Effects on Living Organisms Paul B. Sears, Professor of Botany, Yale University
12.	Dec. 18	Heredity and Environment Leslie C. Dunn, Professor of Zoology, Columbia University
13.	Jan. 8	Evolution M. F. Ashley Montagu, Chairman, Department of Anthropology, Rutgers University
14.	Jan. 15	Cell and Psyche Edmund W. Sinnott, Dean, Graduate School, Yale University
15.	Jan. 22	Term Summary F. S. C. Northrop, Sterling Professor of Law and Natural Philosophy, Yale University

We use science to make bombs, bets, and propaganda. Under its auspices we predict the weather nd the national election. We prove that the universe is finite. We measure the split second that elapses etween the start of a radar beam and its arrival at a target. Science is ubiquitous.

Science is more than ubiquitous. Today it offers new philosophical riches. Science can disclose that hich is intelligible in nature. It can help demonstrate the unity of man and the universe. Even ough the knowledge it offers may not be enough by itself alone, its challenge and its contributions ust be heeded. The formulation of its findings is therefore stage one in any effective program of world nion, and this is the supreme need of the age.

It is fully apparent that the human race must recognize its solidarity amid external diversities. luman brotherhood is not based on idealistic dogma or wishful thinking. It is a practical necessity which ces mankind. Education is called upon to meet this requirement. The present course is intended) be a substantial beginning thereunto.

The course will appraise the key concepts of the natural sciences for their relevance in the edu-tional process. Its contents consist of three parts: (1) a development of the central ideas in present-ay physical, biological, and comprehensive anthropological sciences; (2) an examination of modern ducational philosophy and practice; (3) a critical estimate of uses made, and not made, of scientific leas in education. Items (2) and (3) are mainly reserved for the second term.

concerning registration

This course is open to men and women who desire to enrich their personal philosophy as well as to those adults in posts of responsibility to whom the course can be directly useful. The level of the course will be maintained so as to ensure its interest to those who have college degrees or their equivalent. It is also designed for teachers and students who desire graduate credit in the School of Education of New York University. Credit transfer to other institutions is available.

Non-credit students should register through the Division of General Education, New York University, Washington Square. Fee, $25 per term, plus $2 registration fee.

Teachers seeking alertness credit only should register through the Division of General Education.

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A source book and synopsis of the course will be available for students at the point of registration. It will also be available through the offices of the Foundation for Integrated Education.

Further general information can be had from the Foundation for Integrated Education, Inc., 130 East 44th Street, New York 17, MUrray Hill 2-5672, or from the Division of General Education, New York University, Washington Square.

WHY NOT BURY THE HATCHET?*

James Bryant Conant

Harvard University

The problem of recruiting and training teachers is full of difficulties. Perhaps the greatest single change that one could hope for in the immediate future would be the burying of the hatchet by professors of liberal arts colleges and so-called professional educators.

The two feuding parties have been those who profess a knowledge of subjects and those who profess a knowledge of education or are teaching in our public schools.

The situation may have improved somewhat in the last few years, but the need for a "truce among educators" still seems apparent. As a basis for this truce, I have proposed the following set of armistice conditions:

(1) Let it be agreed by the professors in our colleges and universities that the high schools today have a job to do which is not to be measured primarily in terms of their success or failure in the formal education of the specially gifted youth.

(2) Let it be admitted that by and large a good job has been done in providing an education for a large proportion of American youth and that the present movement along such lines as those indicated in the volume, *Education for All American Youth,* is in the right direction.

(3) Let the professors in the faculties of arts and sciences agree to find out more about the real problems facing the high schools and the type of education which should be supplied to that vast number of boys and girls for whom a four-year college or university is far from being the proper educational channel.

(4) Let the faculties of education and the school superintendents and those concerned with secondary education agree that in attempting to solve the tremendous problems of the last 50 years they have neglected a number of important matters which concern the type of youth who should go to college.

(5) Let those concerned primarily with high school education agree to explore more sympathetically the ways of discovering special talent at an early age, to provide a stronger motivation among many groups to evolve a greater degree of intellectual curiosity, and to provide better formal instruction for those of high scholastic aptitude—all this without a segregation which might turn the boys and girls in question into either prigs or academic snobs.

(6) Let the schools agree that if the colleges will give up many of their formal requirements for admission in terms of content of courses, schools will rate their students in terms of scholastic aptitude.

If we examine historically the expansion of public education and the change in the nature of the school population, we run into these questions: What institutions were to supply the teachers required to tackle the new, formidable pedagogic problems? Whose responsibility was it to think through educational implications of the vast social change?

Do we find that the faculties of arts and sciences were active in this matter? Do we find that they endeavored to prepare teachers and superintendents who would wrestle with these vast problems? Do we find professors of science, linguistics, and the social sciences sitting up nights thinking how best to answer these important educational questions?

With a few noteworthy exceptions, the answer is an emphatic *no.* All the evidence indicates that the faculties of arts and sciences in our colleges during this period of rapid change and expansion confined themselves to bemoaning the situation.

It was left to schools of education or departments of education in the colleges to see how the demands could be met, to discover what were the best ways to educate teachers to handle the new burdens.

Historically, the liberal arts colleges abdicated, and teachers colleges and schools of education took over the job. They were the inheritors of the separatist tradition of the earlier normal schools. When university professors blame the schools of education for the shortcomings of our public schools, the reply from the professors of education in historical terms is all too evident.

But while the origin of the quarrel is of significance, the important matter is not to assess blame but to work for close cooperation in the future.

In the past, the psychologists more than any other members of the usual college faculty have been interested in the problems of the schools; they have worked with and in schools of education. In the future, we may hope that not only psychologists but sociologists and social anthropologists will follow this same cooperative path.

In this direction lies the hope for progress, not only in establishing peaceful relations between faculties but in improving the basis of our understanding of education as a social process. Barring the advent in the educational world of another great figure like John Dewey, who was both an academic philosopher and a leader of professors of education and school teachers, this building of a bridge between certain scientific disciplines and the schools of education seems the most likely way to improve the preparation of our teachers.

*Reprinted from Dr. Conant's book, *Education in a Divided World* (Harvard University Press, 1948, pp. 143 and ff.)

THE SOCIAL IMPLICATIONS OF SCIENCE

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PART I

I shall examine in order the following notions: (1) "society" in its generic meaning, and the source of society, called "creativity;" (2) the history and nature of scientific materialism; (3) the rise of the principle of society in science; (4) the scientific attitude; and (5) the relations of science to the principles of society and creativity.

I.

The concept of society means: that two or more events are sensitive and responsive to each other and to the "whole" which they constitute.[1] The "whole" here is conceived as the *dynamic interrelatedness* of the parts which determines in part the sensitivity and responsiveness of the parts one to another and to the whole. The whole is not a mere aggregate; neither is it a mystic, transcendent entity, subsisting separate from the parts. It is that set of binding processes without which the whole would not be a whole and apart from which the parts-in-a-whole would be something else. The whole is a concrete event, forever altering and being altered by the parts. As Mary P. Follett says, the character of "wholeness" comes "by an interweaving *with* the parts as well as by an interweaving *of* the parts."[2] Integration is not a mere additive process, or the result of such a process, the sum of the parts. It is the internal interrelatedness of the parts, and as this interrelatedness changes so do the parts. "The 'something new' of integration is not 'over' or 'more than' or 'greater than' the parts, as often erroneously claimed."[3] Something new has been added, but not by addition or superimposition or mysterious transfiguration. As Conger says, "An integrate is never more than the sum of its parts: it is other than the parts taken severally."[4]

Some contend that the pattern of interrelatedness called the "whole" is the function of some "dominant member."[5] A tree is said to be a low-grade society because it lacks a controlling unit and a hierarchy to disseminate the controls, whereas a cell with its nucleus or an animal with its nervous system displays a high degree of sociality. But in any case our definition of society holds for both federal and centralized organizations. Even if one member is "dominant," it must take account of the actions of the subordinate members; otherwise it would not be a member of the whole, since to be a member of a whole means at least to be influenced by the parts.

An atom therefore is a society, since the protons and electrons are mutually sensitive and responsive (for an electron's behavior in a stable atom is different from that in an unstable atom, or outside an atom), and since the character of the whole atom is altered as the individual parts are altered, as when a neutron is added to produce an isotope of new characteristics. It may be difficult to demonstrate directly and exactly how the structure of interrelatedness of an atom influences the parts; Whitehead suggests the notion of sympathy or prehension. Certainly it is easier to show, as modern psychology has done, that individual human beings respond to wholes of interrelatedness. (I am a different man if I think our relationship is one of trust.) But we may infer such part-whole relations in atoms and the like by using the method of difference.

Similarly, a molecule, crystal, colloid, unicellular organism, multicellular organism, ant society, personality, family, university, TVA, nation, and our sun[6] are all societies, with various degrees of reciprocity in the part-part and part-whole relations.

Every individual event in our known world – except perhaps the ultimate building materials – has probably some degree of sociality in this sense. But there are grades of sociality. The constituents of a water molecule are not so sensitive and responsive to one another and to the whole as are the constituents of a protein molecule. Nor is the whole or plan of a colloid so influential over its parts as is the plan of a molecule over its parts. Nor is the sociality in a molecule so complex (in the system of control), so differentiated, or so vivifying as in a human organism.

Probably not all societies participate in other societies. The Tennessee River and this seminar are not at the present moment in one social system – though if we wait long enough and look far enough we should probably discern, thanks to the over-all organization of the TVA, that we affect the river and it affects us and we both affect the plan of TVA. I have deliberately chosen a hard case. We all know that the TVA plan affects the soil expert, who affects the farmer, who by the use of phosphates affects the land, which affects the growth of pasture, which influences the feeding animals and men, holds the soil, keeps

[1] Gerard, R., "Higher Levels of Integration," Redfield, R., Ed., *Levels of Integration in Biological and Social Systems.* Lancaster, Pa.: Jaques Cattell Press, 1942, pp. 74-75.
[2] Follett, M. D., *Creative Experience.* New York: Longmans, Green, and Co., 1924, p. 113.
[3] Ibid., p. 75, footnote.
[4] Conger, G. P., "Integration," *The Second East-West Philosophers' Conference,* Ed. Charles A. Moore. University of Hawaii Occasional Paper 52, December, 1949, p. 31.
[5] Rader, M. *Scientific Monthly,* 1946, pp. 500-510.
[6] Gamow, G., *The Birth and Death of the Sun.* New York: Penguin Books, 1945, pp. 98-101.

the silt from streams — which being cleared run into reservoirs driving the turbines that generate electricity to heat furnaces that transform phosphate ore into the phosphates we started with. Lilienthal calls this the principle of unity in nature.[7] It is what I mean by sociality.

The various social orders in the universe have not existed from eternity, as Aristotle imagined. They have evolved. We may observe this process of evolution today in the formation of an atom, a molecule, and on up to a personality or family. This process of social formation I call creativity. It consists very crudely and simply of (1) novel emergent events and (2) novel emergent integrations which bind into relations of mutuality those previously emerged events. Because this process of innovating-integrating requires interaction of events, it is sometimes called "creative interaction," insofar as the interaction issues in a new creation of a more complex and vivid social order.

This process has been described by a great many scientists in recent years (such as Ashley Montagu and L. L. Whyte), although they do not always give it the precise formulation of philosophers like A. N. Whitehead and H. N. Wieman. It seems to be what the Marxists (like Needham) mean by the dialectic; if so, there is a metaphysical basis for the meeting of East and West. The recent literature of the social sciences seems to be confirming this principle at the human level. Probably the discovery of creativity by the sciences will rank with the great discoveries of human history, such as gravitation and atomic fission.

II.

The principle of sociality in nature provides us with an approach for understanding the various sciences, and for setting into contrast the older scientific materialism and the newer organicism or social theory of nature.

Physics reveals those massive, routinized, enduring societies whose long life has been bought at the expense of novelty, excitement, and adventure. Biology reveals those societies whose rhythm of existence displays variation, and enhanced vividness. Variation is exemplified in differentiation of structure and function, sex, motility, specialization (like sense organs), mutations, etc. The variation is partly a function of the freedom of the members within the whole. In a molecule, or in an aggregate of molecules like a gas, the tyrannous average pulls the deviants (the disloyals, the subversives) back into line. But in a biological society, whether it be a Ulothrix or a healthy human community, specialization is precious, and novelty supplies its own delight.

Social science (which is a study of human psyches — "psychology" — in social relations) deals with those societies marked by mentality or extreme abstractive power. Insofar as mentality does not enter into the study of human groups, that study becomes biology or physics. Of course it may be argued that into many human societies the exercise of mentality does not enter. If so, so much the worse for psychology: it has, alas, no subject matter. Yet we are all aware that there are human minds. A physicist and a biologist are minds (or "minded organisms") and so is a psychologist.

These three sciences cannot be separated: each deals with a set of societies which has a given place in a hierarchy of support. The physical undergirds and "envelopes" the biological, and similarly the biological the mental.[8] Further, electrons exhibit some independence and variation, just as biological organisms exhibit some rudimentary mentality. It is our defect in vision which divides the sciences arbitrarily. Once the divisions are established, our defective vision becomes habitual.

Even further, a physicist or biologist or psychologist is himself an illustration that reality is one, though filled with genuine discontinuities and tensions. He is not just a cohesion of atoms, or a variable protoplasm, or a disembodied mind. He is a unique society of societies, and he bears within his microcosm the various levels of the universe. Not only are biological and cultural stages "recapitulated" in him; the whole physical world is represented and reorganized.

The fact that the scientist is this complex society of societies influences what he investigates. Every physicist is aware that the presence of his body in the investigation of minute bodies may radically affect the outcome. But also present and influential is his biological organism, seeking satisfaction, and the intrusion of mentality, sensing, responding, organizing. To neglect the influence of these three layers of factors is to arbitrarily abstract away what is considered unimportant. Thus the traditional physicist tends to picture himself as a machine tracing the mechanisms of machines, the biologist sees himself as a sensitive protoplasm being sensitive to protoplasm, and the psychologist thinks of himself as a mind minding minds.

Of course specialism is important; it is especially characteristic of minded organisms. But when the specialization comes to dominate the social economy at the expense of the development of all parts of that economy, its evil has outrun its value. Since we human beings are organisms, interrelated with other organisms, and since we live in a world fundamentally physical, the special function of mentality usurps its social role when it arrogates to itself exclusive authority and status in the interdependent scheme of things. Mentality fails either (1) when it dissociates itself from those general social conditions to which it owes its origin

[7] Lilienthal, D., *Democracy on the March.* New York: Pocket Books, 1944.

[8] Needham, J., "A Biologist's View of Whitehead's Philosophy," Schilpp, P., Ed., The Philosophy of Alfred North Whitehead. Evanston: Northwestern University Press, 1941, pp. 243-271.

and to which alone it has relevance — thus many modern university scientists who depend on culture are monastically indifferent to its concerns and needs; and (2) when it gives exclusive attention to its own claims and neglects its associates — thus a scholar may neglect his emotional life, or a bombing at Pearl Harbor, being so absorbed in his private intellectual pursuits.

This dominance of science, this idolizing of mentality, in the educated classes of the West for the last 300 years has produced a civilization unsurpassed in social chaos and mental confusion. The chaos arises in part from practical difficulties inherent in every era struggling toward new integration; it also arises from mental confusion. As Whitehead says of the 19th century, " . . . some of the deeper thinkers among theologians and philosophers were muddled thinkers. Their assent was claimed by incompatible doctrines; and their efforts at reconciliation produced inevitable confusion." [9] This mental confusion is not a want of intelligence, or clarity, or consistency. The great thinkers of the last 300 years, an incredible procession of geniuses, were all intelligent, clear, and consistent. They possessed these virtues in the extreme. But they could not imagine anything beyond their clear and consistent systems. Life, like matter, mind, and society, could be for them reduced to successive configurations of masses in motion, moving according to clearly defined and obviously consistent laws. Those hard-headed, clear men saw nothing but hard, clear things in the universe. Such was the dogma of scientific materialism.

It is curious that, while they seemed to idolize "matter," they idolized really one way of *minding* that matter, one theory of matter. So that the idealists of the 19th century simply extended the deification of the human mind already implicit in the religious devotion of the scientists to materialism. So also did the criticisms of the idealists produce a radical revision in the highly abstract though technically effective scheme of scientific materialism. You cannot pay exclusive attention to the categories of mentality — clarity, distinctiveness, coherence — without eventually suffering the consequences of such limitation. But it was a full three centuries, with the emergence of biology, before the limitation appeared.

Some thinkers sensed the confusion in the system of scientific materialism, when that system was probed to its roots. David Hume demonstrated that an empiricism of strict sense impressions (one basis of that system) cannot sustain the notions of matter, mind, cause, the uniformity of nature, etc., all of which were naively assumed in the science of his time. But Hume was distressed by his conclusions. "I am at first affrighted and confounded with that forlorn solitude in which I am placed in my philosophy," he wrote. While "all the world conspires to oppose and contradict me, I find myself absolutely and necessarily determined to live and talk and act like other people in the common affairs of life." [10] Hume here laid bare the abyss between the basic notions of science and the common experiences of men. He was fully aware of this abyss. His conclusions jolted his own sense of importance, his notions of life, continuity, unity, freedom, purpose, value — in short, his existence as a human being. He found himself marooned on an island of abstraction, cut off from the stream of common activities and everyday intuitions. But at last his "animal faith" rescued him, asserting that neither animals nor children nor mankind nor philosophers are guided in their inferences by reasoning; rather "custom . . . is the great guide of human life." [11]

Now custom (habit) is not fundamentally an intellectual category; it is biological and emotional, as Burke saw so clearly. And it is habit which binds a man's various selves into a unity. Hence without knowing it Hume has re-established more firmly what he at first seemed to annihilate. He perceived that at the root of the prevailing scientific interpretation there was no room for the categories of mentality, freedom, variation, or even continuity or law; and these are the very premises of science. The whole intellectual edifice therefore collapsed.

But not until the modern period of physics, and the dissemination of the idea of evolution, did the collapse become widely acknowledged. Physics challenged the old notion of mass as fundamental, substituting energy waves, and suggesting that change is basic and permanence derivative; and it yanked the rug of absolute space-time from under the clear, settled, discrete, and exact furniture of the Newtonian salon. Finally, the idea of evolution laid the axe to the root of the tree of fixed permanence.

In the ensuing confusion various minds posed various answers to the problem posed by Hume. The materialists tenaciously clung to mechanism; the idealists tucked matter and life inside the Absolute Mind; the vitalists put one foot in heaven and the other on earth; and the dualists did double duty to the two worlds of body and mind, fact and value, science and religion. But it was the idealists who made the greatest bid for popular favor, for they affirmed with a contagious faith that, as James put it, "the best things are the more eternal things, the things in the universe that throw the last stone, so to speak, and say the final word." [12] The idealists dared assert

[9] Whitehead, A., *Science and the Modern World.* New York: New American Library, 1948, p. 119.

[10] Hume, D., *A Treatise of Human Nature.* Garden City, N. Y.: Doubleday, Doran, 1935, pp. 361, 362, 366.

[11] Hume, D., *An Enquiry Concerning Human Understanding.* La Salle, Ill.: Open Court, 1946, pp. 111, 45.

[12] James, W., *The Will to Believe.* New York: Longmans, Green, 1921, p. 25.

that life and mind are matters of reality. They had carried the problem one step beyond Hume. But there remained the question of the exact character of life and mind, and their relations to the dynamic world described by the new physics.

III.

The new biology and the new physics provided what the Newtonians did not need and what the idealists lacked: a basis in nature, in all of nature, as it was so generously conceived by Spinoza, for the categories that seemed unimportant to the older science and metaphysics. To understand this great revolution in thought we may simply recall names like Bernard, Sherrington, Pavlov, Cannon, Child, Coghill, Lashley, Faraday, Maxwell, Hertz, Einstein; all the famous names in psychology, commencing with the gestaltists, the Deweyites, the intuitionists, and the social psychologists like C. H. Cooley and G. H. Mead; and the students of society like Marx, Veblen, Tawney, and Shaw. The general viewpoint emerging from these studies has been called organicism, which calls attention to the principle of sociality in all things. It received philosophical expression in the writings of Henri Bergson, William James, John Dewey, and many others, and most profoundly and systematically in the work of A. N. Whitehead.

But a culture imbued with the idea of individualism in all spheres of thought and action for 300 years is bound to lag behind a system of ideas which defines sociality as the basic principle of nature. Even so, there is at present at work a widespread transformation in the modes of thought among the educated classes — though at the same time we participate in activities and are enmeshed in emotions which express the older point of view. We are caught in the contradictions between cooperation and competition; and this conflict is not merely one between ideals and practices, for the rising forces of socialism in the real world of economics stand over against the forces of competitive capitalism which made us what we are in the West. A physicist, biologist, psychologist, or philosopher may inform his classes of the principle of sociality in the world, all the time fearful that he may be fired by pressure from local groups identified with the old ways of thinking and living. Further, he must literally fight for his life against fellow teachers competing for his job in a ruthless economy.

The doctrine of sociality awaited the efflorescence of the biological studies for its fullest ripening. It is curious that, as Thomson and Geddes point out,[13] the earlier theories of evolution reflected the social structure in which they arose; hence Lamarck's theory expressed the interior Napoleonic freedom of the organism, Darwin's the specialization and mechanism and commercial competitiveness of 19th century England, Weismann's the racial autocracy of Germany. The captains of industry, of course, seized upon the evolutionary doctrine to justify their exploitation of natural and human resources. When Marx said that evolution moved toward the triumph of the cooperative over the competitive forces, the apologists of industry accused him of being unscientific. Yet now it appears that Marx's theory was an understatement of the potency and pervasiveness of the cooperative powers in the world. For we now possess masses of data from the biological and social sciences in proof of the cooperative principle as fundamental to the evolution of higher forms.[14] The various "life sciences" now find themselves unified by a common subject matter diversely exemplified. And as they become unified they can see cooperation operating not only under the microscope or in the field but also between those organisms that peer into microscopes and take field trips. That is what Wordsworth meant when he wrote that

> One impulse from a vernal wood
> May teach you more of man,
> Of moral evil and of good,
> Than all the sages can.

But why did we need to go to the wood, to the plants and animals, to learn of good — the very animals which "shrieked against our creed," the creed of love? Why did we take such a long way around to home with its principle of cooperation?

The answer lies partly in the social origins of men's ideas. The 19th century, though outwardly peaceful, was a competitive century, in thought and action. The theory of evolution that evolved implied the goodness of competition. It was not a pure induction, for no hypothesis is. Darwin rather derived his theory from the climate of opinions, scientific and popular, wherein he lived and moved and had his being. Of course he assembled vast evidence to support his hypothesis and hit upon an important truth undiscerned by less imaginative minds. But as every biologist knows, billions of data exist to be noted and organized. And Darwin simply threw those data into the ideational pattern dominant in his time. As Darwin drew what he needed from the substrate of human culture, so his contemporaries took from Darwin what satisfied their wants. And as Mumford points out, although "Darwin's study of the ecological relations of the earthworm gave a formative impulse to the new science of ecology . . . his theory of natural selection sanctified the brutality of industrialism and gave a fresh impulse to the imperialism that succeeded it." [15]

[13] Geddes, P., and Thomson, J. A., *Evolution*. New York: Holt, 1911.

[14] Redfield, R., *op. cit.*

[15] Mumford, L., *The Condition of Man*. New York: Harcourt, Brace, 1944, pp. 347, 349.

How shall we then explain Darwin's ecology, and the rise of the idea of cooperation in the 19th century? Life is not all *bellum omnium contra omnes*. Even the 19th century, in regions like England, possessed its kindlier side. Many families and communities, though stringent and straight-laced, were bound together by ties of affection and mutual helpfulness.[16] Hence those favored children, favored by an environment of love and not destructive struggle, might be expected to seek love in their universe, for it is now known that we seek in the universe confirmation and completion of our inner ruling attitudes. As men seek so they find; and men like Kropotkin and Geddes emerged proclaiming the principle of mutual aid throughout nature.

Of course Darwin was never so Darwinian as the Darwinians. He spoke again and again of "our ignorance of the mutual relations of all organic beings," [17] and in a section entitled "On the Degree to which Organization tends to Advance" he wrote:

> "... naturalists have not defined to each other's satisfaction what is meant by an advance in organization . . . the high advancement of certain whole classes . . . does not necessarily lead to the extinction of those groups with which they do not enter into close competition . . . natural selection will tend to render the organization of each being more specialized and perfect, and in this sense higher." [18]

Now from organization of the individual organs and functions as an instrument of survival, we are led to expect organization of a group as an instrument of survival. Thus the development of clusters, colonies, schools, flocks, herds, families, and other "societies" displays the same principle of organization at work in the individual organism. As A. E. Emerson says,

> "Two trends of evolution emerged in the development of greater living efficiency by means of natural selection. Ecological communities developed with interspecific patterns of relationship to the environment which correlate with a partial control and a relative environmental stability for the individual organisms. In addition . . . (occurred) the development of intraspecific population groups. Sexual adjustments brought a balance between hereditary conservatism and variation. Reproductive adaptations tended to control the environment of the young during early developmental stages (i.e., the egg and the uterus). Familial organization controlled the environment during the later stages of ontogeny (i.e., nests, parental feeding, parental defense) . . . The population became a unit of selection . . . family systems are real cooperative supraorganic entities coordinated by similar biological mechanisms and forces." [19]

The observation of social trends required the evolution of observers looking for such trends. But such observers emerged only under the favorable conditions which would generate in them the idea of cooperation as fundamental. While Darwin reflected the common belief that life is a real and earnest struggle, others, blessed with "the blissful confidence of being loved," could see cooperation as more important. (Tennyson failed to resolve the conflict because at bottom his intellect accepted Darwinism, Wordsworth succeeded because he intuitively repudiated it.) A man with kindly impulses (like Wordsworth) might go to humankind to find the principle of mutual help, and come away disappointed; but there was always nature, with her sweet lore. Gradually the old Newtonian view is reversed: now it is human society which is impersonal, blind, and mechanical, while nature is reinstated as a warm human companion.

But though the romantic poets inspired men with the conviction that nature if not man is on the side of love, it was left to the biologists to ground this conviction in exact fact and to rivet it in the minds of the intellectuals. Men thereby circuitously confirmed to themselves man's unique capacity for love by finding that the "lower" orders, over whom man was reputedly superior, exhibited love in certain respects far more clearly than did the mass of human society; but that we, being animals also, must be surely made in the same image. To learn of man's spirit we had to consult the animals. Of course our spiritual kinship to the animals is an ancient intuition, expressed in totem worship, the myths of Gautama's incarnations, the animal forms of the Greek gods, and the story of the birth of Jesus, with the kine and sheep close by.

Why did not the psychologists claim what was properly their birthright? Why did they fail to perceive that cooperative principle among psyches, where according to the religious tradition it reigned supreme? The answer: individual psyches simply did not display cooperation, and were not expected to; and if they did, they were, so it appeared, only acting with disguised selfishness. For Freud love and sympathy and all group behavior were nothing more than re-directed hostility and anxiety. But Freud wrote at the climax of the age of individualism, and the climax of the mechanism period in biology. Indeed, the individualism as a mode of life had begun to disintegrate, revealing its underlying pathologies. And psychoanalysis appeared in re-

[16] Brinton, C., *Ideas and Men.* New York: Prentice-Hall, 1950, p. 435.
[17] Darwin, C., *The Origin of Species.* New York: Eckler, n.d., p. 68.
[18] *Ibid.*, 111-113.
[19] Redfield, R., *op. cit.*, 171-172.

sponse to such pathology. In erecting a theory of human nature analysts were bound to be impressed by the inescapable fact that illness in an individualistic society is caused by the frustration of individual drives, chiefly the drive to live (called "sex" or "power"). Consequently the causes of illness were held to be individual, the symptoms individual, and the cures individual. What they failed to understand was that man is in his nature social and hence man's illness is basically social in origin and symptom; and that the cure of his illness must be a social cure, a radical change in that system of relations, economic, political, familial, educational, etc., which constitute man's very being.

To biologists, then, we owe the bridging of the chasm between the stars and mind. To them we owe the rising unity of the sciences, and of our social order: not only because they have revealed in such abundance the oneness of matter and life, of life and life, of life and mind, and of fact and value, but also because they have bodied forth the principle of sociality in their approach to nature. That approach included an attitude of sympathy, and an aim toward a unified understanding of things. For by and large biologists love plants and animals. They are devoted to the fact of life, fascinated by its order, novelty, tenacity, diversity, variability, resources of adjustment, beauty and delicate power. They court their subjects with great patience, care, faith, and trust — since protoplasm is so tender and easily damaged. They exhibit the detachment, seriousness, and humor of parents watching children grow. For indeed both nurture something precious. Their attitude is a religious one. It was Jesus who said, "Consider the wild flowers, how they grow." And it is a contemporary saint, Albert Schweitzer, who has given us the text, "reverence for life."

(To be concluded)

ARCHITECTS OF IDEAS IN WESTERN AUSTRALIA

This is one of a series of news reports on major and notable examples of modern college practice. The editor of this department, A. Gordon Melvin, City College, New York, is interested in receiving similar reports and accounts of work in other colleges and universities. These should be mailed to him in care of MAIN CURRENTS.

The Integration Committee of the Professional Board for all senior students at the University of Western Australia offered in 1950 a lecture course series entitled *Architects of Ideas,* to follow the 1949 series styled *Essentials of a Civilized Country.* The new course sustained the world outlook, beginning with Plato and Buddha, incorporating Einstein and St. Paul, and concluding with Freud and Frazer, and a series of three lectures on synthesis in the physical sciences, and in humanistic fields.

In the notes of his introductory lecture, Professor G. A. Currie remarks:

"We meet the acute problem of authority and the individual so ably discussed by Bertrand Russell. 'The lack of spontaneity from which our highly organized societies suffer is connected with excessive control over large areas by remote authorities' and 'Glorification of the state is only glorification of a governing minority. No democrat can tolerate such an unjust thing.' he says.

"The responsibility of each individual in a democracy is described best perhaps in a quotation from Dostoevsky, 'Each of us is responsible for everything to everyone else.' "

Professor Currie identified the course, in one aspect, with the study of *power,* in the social and political sense. Machiavelli appears as a scientist making serious study of the realities of the power politics of his day. Plato, Locke, Rousseau, Kant, and Marx all enter into the theme, as philosophers. The students were urged, however, to consider each man treated in other terms, Locke and Rousseau appearing again as students of law. Economics, physics, biology, and other forms of power through knowledge were studied in the course.

The lecture on Buddhism was given by Dr. G. H. Wright of the faculty of education. It offered a review of the history of Gautama, and of the literature sources of the tradition, the Pitakas. The chief ideas of Hinduism, which recur in Buddhism — karma and transmigration — are summarized. Unfortunately the traditional (and erroneous) interpretation of Europeans misled by Schopenhauer is employed to give Buddhism a pessimistic coloring. Nevertheless, focussing attention in such a course upon the power of these two great religions is significant, particularly when set alongside Einstein, Minkowski, and others who seem, but are not, only remotely related to religion.

The summary of the lecture on Einstein indicates how well the course has been devised so as to convey the specific new gains with the general theme. Stock illustrations necessarily occur, they being the best available, but the effort to convey the basic concepts is sustained.

REVIEWS

On our Schools

The Idea and Practice of General Education will, without question, be an educational best seller. In clear and adequate terms, present and former members of the College faculty at the University of Chicago review their great adventure (University of Chicago Press, 1951, 333 pages, no index, $3.50). The several authors introduce all pertinent historical background of the evolution of the central prescribed college courses, including the transformation of the University itself. Here we have an admirable account not only of what is attempted and done, but why changes were made.

For our present purpose the question arises: What is the effect of general education on the student, as a citizen, in this distracted and confused nation?

In some general education programs special efforts are made to stimulate integrative thinking by the student. In such programs special courses are occasionally provided to do more than the other constituent courses can effect. In these, over-all integrative thinking is encouraged, in contrast with concepts good within (but not necessarily between) natural sciences, social studies, and humanities. Historical instances of philosophical method are also studied.

In the College at Chicago (for example), the history course is additional to a companion called "Observation, Interpretation, and Integration," in which the organization, methods, and principles of the sciences are examined. Hence, studies of social integrations run alongside those of the sciences of the past.

In secular institutions the intent of such studies is usually to give the student an opportunity to work out for himself an integration of knowledge. The assumptions appear to be that this is as far as we can go or need to go.

But it is no longer enough to equip the student to arrive at a speculative philosophy on his own. If no synthesis were imminent, general education would be enough. Under the circumstances teachers and students must work together on the new integration. There is no choice in this matter. Every higher society has some kind of philosophical integration or consensus. It may be good or poor. The American consensus is weak. It must be improved. The duty of developing the American consensus is the business of higher education.

We stand on the verge of an era of synthesis. Space-time and field theory in physics, studies of organization in biology, gestalts in psychology, group dynamics in sociology, today's meeting of historical world cultures are all signs of a profound ferment which must go on.

The authors of *The Discipline of Practical Judgment in a Democratic Society* (1943) have revised and reissued it under the title *The Improvement of Practical Intelligence* (R. Bruce Raup, George E. Axtelle, Kenneth D. Benne, B. Othanel Smith, Harper & Bros., 1950, 283 pages, bibliography, and index, $4). During the intervening seven years, while "Mr. X, superintendent of schools, was seated at his desk pondering what to do," because he lacked standards for judgment, events have added acute dangers to the poor fellow's situation. The community which his school is to serve is, today, part of a nation which is being tempted and pressed to abandon the democratic process which the schools were founded to perpetuate. Teachers' unions were problems enough. Now the superintendent has to be ready to deal with the people who will call him a subversive if he approves the reading of our constitutional state papers. As reissued, therefore, this book is more important, oddly enough, than in its original form, not only because of authors' revision, but because of time's demands.

The basic school and community problem is clearly seen, and candidly stated. Democratic methods of social control require the former to be a free cooperation which leads to consent and understanding of the latter. But how are the schools to encourage practical intelligence based not upon crass physicalism and improvisation but upon moral judgments, so that the free cooperation will be prompted by a common understanding as well as a common ideal?

Obviously there must be a body of normative generalizations which democratic and secular schoo[l] can develop and teach, as truths, not as propaganda. The need and the nature of this ever-improving consensus-to-be leads up to the long and decisive tenth chapter, "Generalizations in Practical Judgment." The quest is for a discipline. The eleventh chapter defines it: "Fundamental Method: A Moral Discipline," and subsequent chapters apply it.

This calm, honest, and searching study engenders in the reader renewed respect for the essentially healthy and resolute American mind. If the disturbing physical forces arising from science (to which the authors devote repeated attention) can in their conceptual aspect be poured into the coming consensus, that fundamental vitality can be freed to exercise itself with a confidence which, between 1943 and 1951, has been gravely impaired. The present volume, at its very center (pages 183-193) demands (page 183) that "pratical generalizations serve in integrating scientific and moral intelligence." To systematic and sustained labors to such ends the higher learning is now called, as authors of this volume perceive.

The writer of this review, in his private capacity, *citizen,* has long shared with thousands of fellow citizens disquiet about the steady rise of anti-democratic forces. One by one the numerically largest associations of the country have come under the dominance of reaction until, today, the destruction of constitutional government is all too clearly a real menace. Individual Congressmen speak out, but they cannot dam the flood. The Executive is not supine, but neither is it in command of circumstances. Not all of the Courts are closed to test cases, and now and then the national purposes are upheld dramatically; but their functions are being more and more usurped and impaired by the press and the Congressional committee. Under these well known circumstances, where lies our hope?

Fortunately the teachers' and the scientific workers' organizations stand up to the threat of fascism's rise

at home while the nation resists communistic violence abroad. Those faculty members of the University of California, and their defenders, having won back constitutional status in the courts, may prove to be the group which stood fast at the turning of the tide.

Much now depends on the mass media. The *New York Times* has given some columns to a study of the effects of McCarthyism on campuses, done by Kalman Seigel (May 10 and May 11, 1951). But the distortions by most of the news agencies are not in general counterbalanced by a crusading spirit for the truth and for freedom.

Gratitude, therefore, is particularly due to James B. Conant for his leadership on this frontier. His review of *This Happened in Pasadena* (David Hulburd, Macmillan, New York, 1951, 166 pages, $2.50) was given page one in the *New York Times* Book Review, April 9, 1951.

Dr. Conant concludes the review as follows: ". . . we must face the realities of the Nineteen Fifties: the tide of reaction is flowing strong; there are sincere [and law-abiding] opponents of all forms of non-denominational schools and colleges; there are others far from sincere who, as in every age, like to exert power by causing trouble, by urging the posse to lynch the victim, the mob to burn the dissenter's house, or the school board to fire the 'progressive' administrator. All this is made clear in the story of what happened in Pasadena; the more who read it the better, for these are days when those who believe in tolerance and rational discussion of public matters must realize the consequences of passivity and inaction on their part."

President Conant has recently also taken on the chairmanship of the Educational Policies Commission of the National Education Association, of which he has previously been a member, along with the following: John K. Norton, George A. Selke, Ethel J. Alpenfels, Ruby Anderson, Sarah C. Caldwell, Dwight D. Eisenhower, Alonzo G. Grace, Eugene H. Herrington, Henry H. Hill, William Jansen, Galen Jones, N. D. McCombs, T. R. McConnell, Mae Newman, Lee M. Thurston, Willard E. Givens, Worth McClure, Corma A. Mowrey, Warren T. White, William G. Carr, and Wilbur F. Murra.

The Commission has published *Moral and Spiritual Values in the Public Schools* (National Education Association, 1201 Sixteenth Street N.W., Washington, D. C., 1951, 100 pp., $1). This is reading of first rank, admirable in form and important in content. The inside cover decoration tabulates the thesis: Human Personality, Moral Responsibility, Institutions as the Servants of Men, Common Consent, Devotion to Truth, Respect for Excellence, Moral Equality, Brotherhood, The Pursuit of Happiness, Spiritual Enrichment.

Nevertheless we must ask for something more in a future edition. The authors of this work speak to the nation for a vast following. For they have edited not only for the N. E. A. They say what men like Frank W. Abrams, Chairman of the Board, Standard Oil Company of New Jersey, evidently believe, judging from his address to the National Citizens Commission for the Public Schools (Reported in *The Public and Education,* March 21, 1951). They say (p. 9) that "the Second World War tended to blunt or distort ethical sensitivities. Most of us felt obliged to surrender the responsibility for far-reaching moral decisions. Callousness and combativeness, necessarily developed during war, have tended to carry over into postwar civil life. To be sure, the war experience also fostered idealism, courage, and teamwork. Many Americans acquired during the war a better understanding of other nations and a greater awareness of their international responsibilities. Still, the war and the events associated with it left a great task of moral reconstruction."

In sum, the members of the Educational Policies Commission agree that the task of education is the restoration of the cultural constitution of man, the human soul. How is this to be done in a secular school system unless education is so integrated that it strengthens young men and young women to prize the truth above their own security?

If the American consensus is just good jobs, new automobiles, and ideals which grow pallid when put to the test in some personal crisis, education in the finest buildings by contented teachers is still a failure.

Upon President Conant we respectfully press the point that his courage and leadership against the dark powers within our nation do not come from his knowledge of chemistry, nor his sense of security, nor other technical and lesser sources. Good insight into the meaning of human life surely is what leads him firmly to speak out. Until education fosters insight and civil courage in most, not just the few, we shall continue to rely upon the strong man, eventually upon the political or military strong man. This is not enough in a democracy. Thus Rome decayed. Nor can we rely upon technical superiority for that courage which it may give groups, but cannot give the individual: *courage to stand alone,* because the universe is morally meaningful.

Between chapter two and chapter three in *Moral and Spiritual Values in the Public School,* we suggest a chapter upon education for insight achieved by conceptual integration of the sciences and the humanities, the basis for an American consensus in a rational, spiritual philosophy which will challenge materialism and injustice not only abroad, but here at home.—F.L.K.

On our Sciences

The Origin of the Earth, by W. M. Smart; vi + 239 pages; 8 plates, 42 figs.; $2.75; Cambridge University Press, 1951.

The Nature of the Universe, by Fred Hoyle; viii + 142 pages; 12 plates; $2.50; Harper & Brothers, 1950.

Each of these books deals with the same vast subject. Each is written by a thoroughly competent British scientist; Dr. Smart is a professor of astronomy in Glasgow University, and Mr. Hoyle is a fellow of Saint John's College, Cambridge. Each stems from a series of lectures intended for the general public; the first "had its origin in a series of lectures delivered to members of the three fighting services during the last year of the Second World War and to various audiences on subsequent occasions;" the material in the second was first presented as a series of "talks" on the justly famous "Third Program" of the BBC and has since been published serially in Harper's Magazine. Each displays a

commendable flair for presenting intricate data and mind-stretching ideas in lucid, attractive style.

But there are some notable differences between the two, that cause me to appraise them in strongly contrasting terms. It is not so much the fact that Dr. Smart records many more data concerning the stellar galaxy and solar system than does Mr. Hoyle. It is rather the strikingly different attitude toward "knowledge" that the two authors display. Dr. Smart makes crystal clear the distinction between well-tested conceptual schemes, broad working hypotheses, and speculative ideas. Mr. Hoyle mixes together these three aspects of scientific thought—each valuable in its own way—without regard for the effect produced in the reader's mind. Therefore I recommend Dr. Smart's book most highly and have a dim view of Mr. Hoyle's, to borrow a pungent phrase from our British cousins.

The first third of Dr. Smart's book is essentially descriptive. Here he marshalls the vast array of information now available concerning the components of the solar system, with special attention to the earth, the moon and the planets. From this he proceeds to an enquiry concerning the age of the earth, an enquiry that makes necessary a survey of recent developments that have made available to the geologist the radioactive timekeepers of the physicist. Finally he discusses the many hypotheses that have been constructed to account for the present state of the earth as a result of the operation of cosmic processes. All three parts of the book may be read with utmost confidence in the accuracy of statements made and in the judgment of the author in accepting or rejecting the theories considered.

In contrast, although Mr. Hoyle's book is stimulating and informing, it should be read with great caution. He presents quite accurately an abundance of information about the recent advances in knowledge concerning the composition of inter-stellar gas and "dust" that constitute a large fraction of the total mass in the Milky Way galaxy, the presence of "background material" in the vast spaces within the Universe between the galaxies, and the numerous other significant aspects of the Universe that are now undergoing observation and study by astronomers throughout the world. His report concerning recent application of principles of electrodynamics to astrophysical problems is wholly trustworthy. His majestic picture of the Universe according to "the New Cosmology" is vivid and impressive. His presentation of the concept of "continuous creation," contrasted with the "big bang idea," is scholarly and convincing. But he over-reaches when he comes to hypotheses of stellar and planetary evolution and to speculations concerning matters that are at present beyond the pale of "fruitful" contemplation.

For example, he writes dogmatically that "there was once another star moving around the sun that disintegrated with extreme violence." No hint is given that this is a speculative idea, as yet hardly qualified even to be rated as a working hypothesis because no means are at hand for applying rigid tests of its validity. Or again he states that he has "described the way in which planetary systems like our own come into being." He should have said "*a* way in which planetary systems like our own *may perhaps* have come into being." Similarly he "estimates" that there are at least 100,000 planets within the Milky Way, suitable as the abode of life, but only the alert reader will be aware that concealed behind the apparently conservative mathematics there is a precarious inverted pyramid of speculation piled on speculation after speculation, interlarded with slippery assumptions.

There is another contrast between these books that may possibly be correlated with the difference already mentioned. Mr. Hoyle devotes the last few paragraphs of his book to a consideration of "contemporary religious beliefs." For him, "religion is but a desperate attempt to find an escape from the truly dreadful situation in which we find ourselves." The "beliefs of the Christians" concerning life beyond the grave suggest to him merely "an eternity of frustration."

On the other hand, Dr. Smart cautions his readers to "bear in mind the incompleteness of the picture which science gives of the beginnings of things; as we shall see, it can account in a surprisingly successful way for several elements in the story but it fails to discern any motive behind Creation, any omnipotent Mind, any guiding hand in the evolutionary process; that this is so is not a fault of the scientific method but of its limitations in a critical survey of the Universe from every possible angle. . . . More and more, scientists are realizing that they are exploring only one section of the great world of Nature in all its manifold complexity; beauty, moral conduct, spiritual values, religious experience are all outside his domain, yet all come necessarily within man's scrutiny when he attempts to interpret the Universe as a whole and strives to discern purpose therein." And his final paragraph includes these sentences: "When we study the Universe and appreciate its grandeur and orderliness, it seems to me that we are led to the recognition of a Creative Power and Cosmic Purpose that transcends all that our limited minds can comprehend. . . . To one astronomer at least 'The Heavens are telling the Glory of God and the Wonders of His Works.' "

In fairness to Mr. Hoyle it should be added, however, that he, like Dr. Smart, rejects "the outlook of the materialists." "How can we accept," says he, "the argument of the materialists, when the essence of their game lies in throwing up the sponge?" His final paragraph also conveys, but in very different phrases, the insight of a philosopher-scientist: "When by patient inquiry we learn the answer to any problem, we always find, both as a whole and in detail, that the answer thus revealed is finer in concept and design than anything we could ever have arrived at by a random guess. And this, I believe, will be the same for the deeper issues we have just been discussing. I think that all our present guesses are likely to prove but a very pale shadow of the real thing; and it is on this note that I must now finish. Perhaps the most majestic feature of our whole existence is that while our intelligences are powerful enough to penetrate deeply into the evolution of this quite incredible Universe, we still have not the smallest clue to our own fate."—KIRTLEY F. MATHER

(Reprinted with permission from The Scientist's Book Shelf in *American Scientist,* July, 1951.)

Security, Loyalty, and Science. (Walter Gellhorn. Ithaca, N. Y.: Cornell Univ. Press, 1950, 300 pp. $3.00.)

It would be naïve to expect members of Congress to read this review, but, in the remote possibility that one of them may pick up this issue of SCIENCE and get

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to this page, I recommend the book for his consideration. As for the regular customers of this journal, Professor Gellhorn's contribution cannot be too strongly recommended to all those concerned not only with the state of science today but with the state of the Union. Some of the facts assembled in this book are so bizarre as to make every intelligent layman wonder that some scientists of force and originality still remain in government service. That they have done so is no fault of military intelligence or the House Committee *of* Un-American Activities. To what extent these two agencies have reduced our scientific advantage is, of course, difficult to determine.

It is said that, in order to avoid the unpleasantness resulting from the interruption of their research, a number of government scientists are seriously considering joining the Communist Party. They reason if they join "the Party" and then resign they become "ex-Communists," and practically everybody knows that to some public officials there is no one more loyal, more honorable, or more patriotic than an ex-Communist—except possibly an ex-Nazi. The idea may perhaps have something to recommend it but it won't work, for they'd still be scientists, and practically everybody knows that to some public officials there is no one more cunning, more treacherous, or more suspect than a scientist—except possibly a social scientist. So low a fellow is he that many states have seen fit to pass special laws concerning him and to require special oaths from him. These also apply to all his nonscientific academic associates, except college presidents. The latter, so I hear, can mingle with anyone and be free of guilt by association. One prexy has been heard to object to this type of class distinction (based on immunological criteria) on the grounds that it is very undemocratic and discriminates against college presidents. His name cannot be revealed for reasons of national security.

Another deterrent, so it is claimed, that keeps strong research men away from government laboratories is the overclassification of the work. This prevents the investigator from publishing—or, to be more correct—submitting for publication, the results of his research. Actually this is a boon to the editors of our more critical scientific journals. Nevertheless, the military and the AEC should avoid classifying as "secret" such data as are found in the first editions of *Kirkes' Physiology* (1848) and the *Handbook of Chemistry and Physics* (1914). Also, if they haven't got around to it yet, "Mothersill's" seasickness remedy should be removed from the "restricted" category.

Overclassification may also be hazardous to health. There is a rumor concerning a scientist who, while working in a military laboratory, wrote a report which was promptly classified as "secret." Now, he was only cleared to receive "confidential" material, and one day when he went to the laboratory's library to request a copy of his report, it was refused him as he was not cleared to receive "secret" material. This caused him no end of confusion and anxiety and he had to be placed in an asylum. Incidentally, he was a psychoanalyst. I am quite certain that all men of civilized feelings will agree that that is no way to treat an investigator, even a psychoanalyst.

And so those are some of the thoughts that come to mind while reading Professor Gellhorn's excellent and very serious survey of the sad situation of science and scientists, not only in our government laboratories, but also in many of our universities. That so important a book about so serious a situation should provoke in this reviewer whimsical and even incongruous thoughts is not intended as a detraction of its excellence. The undersigned, having had some contact and a little experience with the military, has come to the conclusion that this attitude is our best defense and probably our most effective offense. Remember what happened to that poor psychoanalyst!—David B. Tyler, Bel Air, Maryland.

(Reprinted from Science, Feb. 23, 1951, p. 216)

New Atoms: Progress and Some Memories, by Otto Hahn (N. Y. and Amsterdam: Elsevier, 1950, 183 pages, $1.75) is both an interesting and authoritative account of recent developments in the field of uranium transmutations, new atoms (including the artificially produced elements, the transuraniums, and their place in the periodic system), and associated topics in nuclear research including the possibilities of the utilization of nuclear reactions as a source of industrial energy. Otto Hahn, discoverer (with Fritz Strassmann) of the fission of uranium and thorium and Nobel prize winner in Chemistry (1944), is eminently qualified to write on these matters; what is particularly gratifying is to find his writing, dealing as it is with inherently difficult concerns, to be lucid and readable even for those who are not themselves competent in the theory of nuclear chemistry. This book, coming as it does from a recognized pioneer in radiochemistry, is thoroughly substantial. The book consists of four chapters: the first a translation of Hahn's Nobel lecture, "From the natural transmutations of uranium to its artificial fission;" the second, "The chain reaction of uranium;" the third, "Artificial new elements;" and the fourth, "Some personal reminiscences from the history of natural radioactivity."

—R. P. W.

On our Philosophies

Oliver L. Reiser, Professor of Philosophy, University of Pittsburgh, is a writer with a considerable and growing following. In his *Nature, Man, and God* (University of Pittsburgh Press, 1951, 152 pages, $2), he writes with his customary ease of the vast topic in the title. Few contemporary teachers of philosophy seem to be able to gather together so much diversified and often daring thought, keep the cosmos in view, and repeatedly apply the thinking to the actualities of our times. Professor Reiser invariably communicates hope: there is a way out; a world society can emerge; insight can be had. He manages all of this consistently and with progressively greater power in this volume, where his central theme is natural order derived from a living space-time suited to psychic field phenomena.

Reiser's object is to implement the chief intuitions and concepts of conspicuous classical philosophers with various contributions from mathematics and the sciences, especially physics, biology, and psychology. He would be prompt to admit this is only a hope as yet. But he has his own way of anticipating the time when future studies will fill present gaps. To his own eclectic reading and acute understanding, he adds a wide har-

vest by correspondence with his contemporaries, and a vital feeling of his own. The result is an outstanding example of a bold and discursive thinker using many mental weapons in a most stimulating fashion. In this volume again, he works together materials from many sources highly disparate in worth, and by compression in short compass exhilarates the reader with courage and hope in respect to a world consensus. Naturally in such compression he cannot do justice always to his living sources, but his ability to make their contributions truly his own gives effective consistency and even artistry to the result.

In what sense is the author a humanist, as he describes himself? More and more Reiser's intellectual kinship to the pan-psychic monism of Liebnitz, Whitehead, Bruno, and Plato becomes clear. He is in good and congenial company, but there is no place for the physicalists who also call themselves scientific humanists. Besides him, some scientific humanists are merely Mesozoic.

Reiser's view is well stated on page 19:

"The most important thing, perhaps, to the scientific investigator about this Ultimate Reality, this uncreated Cause which man is so constantly trying to visualize and symbolize, is its cosmic magnetism in drawing and holding to it the finest and the highest faculty that man possesses throughout the ages and among all races of men. The incalculable significance of 'God' is not to be found in the forms created to communicate the idea of God, but in the inference that there exists a power so universal, so potent, so all-absorbing that the pursuit of disciplines leading to an experience of that power has developed an element in human life which has become one of the dominating principles of all societies. We may say that our forms of government, our forms of education, and our forms of religion constitute the great triumvirate of contemporary society. Some of the most powerful institutions on the face of the earth are religious institutions. Even the great Russian experiment, which attempted to suppress religion as a social institution, has now given way before customs and impulses which cannot be uprooted from a humanity in whom the instinct to survive, the instinct to reproduce, and the instinct to worship the unknown source of all life are of equal strength and validity."

Three Thousand Years of Educational Wisdom, edited by Robert Ulich, Professor of Education, Harvard University (Harvard University Press, 1951, 614 pages, no index, $6.50) is wonderful reading. The editor is someone who believes that professors should have some substance to profess. He himself has, and it pertains to sociology, politics, religion, philosophy, and the whole gamut of culture. The selections in this book speak for the authors quoted, but they represent an editor in whom historical scope, global outlook, and passionate convictions play through a balanced, independent, and courageous mind. In listing the sources we do more than reveal the book's fine contents:

Asia: India, China; Greek and Roman Antiquity: Plato, Aristotle, Plutarch, Quintilian; Ancient and Medieval Christianity: The Bible, Tatian, Saint Augustine, Saint Basil, Saint Jerome, Hrabanus Maurus, John Gerson; Islam: Al-Ghazoli, Ibn Khaldoun; the Humanist Evolution: Aenea Silvio, Martin Luther, Desiderius Erasmus, The Jesuit Order, Michel de Montaigne; the New Method of Thinking: Francis Bacon, René Descartes, Galileo Galilei; the Development of Modern Education: Johann Amos Comenius, Sir William Petty, John Locke, Jean Jacques Rousseau, Benjamin Franklin, Thomas Jefferson, Johann Heinrich Pestalozzi, Johann Friedrich Herbart, Friedrich Wilhelm Froebel, Ralph Waldo Emerson.

If we may venture a criticism, it is that the crucial significance of 20th century methods of thinking (in terms of wholes in physics, biology, and psychology) are not represented. There is likely to be a series of editions of this volume. Could not the educational meaning of our own new method of thinking be briefly exemplified?

A History of Philosophical Systems, by Vergilius Ferm, is a remarkably valuable volume (The Philosophical Library, New York, 1951, 609 pages, and admirable index, $6). It begins with a comprehensive, compact, and readable review of India's systematic resources, in eighteen pages, and another on Zoroastrianism in fifteen, by Indian scholars. Buddhist, Chinese, Ancient Jewish, Greek, Hellenistic, Roman, and every other important ancient and mediaeval group is reviewed, with choice bibliographies for each.

Part II, Modern and Recent, deals with groups and individuals first (Renaissance, Early Modern Rationalism, Early Modern Empiricism, the Enlightenment, Kant, and so on) and then with topics: Positivism, Personalism, and the like, finally through Semantics, Values, Philosophies of Science, of Aesthetics, Ethics, History, Culture, and of Religion, in 384 further readable and immediately meaningful pages.

We owe to the editor (who is department head in philosophy at the College of Wooster) and to his distinguished colleagues an unusually useful compendium by experts. No single volume known to us matches this as a source book. The publisher has done well by his authors and his readers except for a simple mistake: both the left and right pages carry the book title throughout; one never knows from the heads what section he is in.

A History of Ancient and Mediaeval and of Modern Philosophy (in two volumes) by Frederick Mayer (American Book Co., New York, 534 and 642 pages, plus indexes, 1951, $5 and $5.25 respectively) offers, in contrast, the whole of Levantine and European thought done by one author. The work is a college text in style, but unusually comprehensive, and according to a useful system which brings out in most cases the background, life, and works, specially philosophically meaningful events in life, and evaluates the science, metaphysics, psychological notions, and other important features of each man or school. The treatment of classical figures often too neglected (such as Hobbes) gives balance to the whole, and recent social philosophies are seen as a natural consequence of prior developments.

It is disheartening, however, to see such an admirable undertaking for present-day students published without any sections on India, China, or any far-eastern thinker. There is apparently only one reference to Buddhism, and that (Vol. I., p. 264) repeats tiresome attribution of nihilism to that great faith.

Adv.: *Teacher of integrated studies*: American literature, history, and art. PhD preliminaries completed. Four years of college teaching experience. 81A, 508 West 114th St., New York City.

On our Society

Harper and Brothers have published *Field Theory in Social Science,* papers by the late Kurt Lewin (338 pages and index, 1951, $5) and (simultaneously) *Roads to Agreement,* by Stuart Chase (245 pages and index, $3.50). This coincidence has an interest in itself.

Lewin is widely known as one of a small number of original and daring men who have been making determined attempts to make an exact science out of sociology. Lewin pioneered and powerfully accelerated the movement, and the publication of his collected papers is a solid service which we owe not only to Harpers, but to the Research Center for Group Dynamics (founded by Lewin in 1945 at Massachusetts Institute of Technology) at the University of Michigan. Darwin Cartwright is the editor.

This volume is the second in the series, and deals with formalization, constructs, definition of fields, field theory of learning, and other topics in psychology and sociology. For the reader's help the editor defines essential terms—fields, inter-dependence, and contemporaneity—in the introduction; the concepts, whole, differentiation, and unity are dealt with in the appendix.

To all who know of the forces converging upon our notions of man as a social self, from gestalt and parapsychology, in particular, these volumes are of primary value. We seem to be on the verge of a relatively sudden basic clarification in sociology as in other areas. We need it. Without a discovery of the orders we must know, society cannot be stabilized.

In Mr. Chase's book the names of Kurt Lewin, Jacob Moreno, Stuart Dodd, and others appear. He is reporting upon these developments in group dynamics to his large public, "not an encyclopedia, but neither is it a primer." He offers it "as an experiment in integration." Certainly everyone is brought into the act, from Martin Dies and Westbrook Pegler to Fermi and Einstein. But the true nature of the hope in the work of the students of social metrics is not communicated to the reader. The present reader of Mr. Chase's book got little idea of the basic challenge to physicalism which is to be seen in the current convergence of intellectual forces. This is not integration. Popularizers may have to be chatty and personal, and no doubt the reader will feel he is going everywhere and seeing everything. But is this confidence repaid?

Neighbors in Action — A Manual for Local Leaders in Intergroup Relations (by Rachael Davis DuBois, Director, Workshop for Cultural Democracy, Harper & Bros., New York, 1950, 294 pp., $3.00) announces signal achievement toward realizing cultural democracy in a community distinguished by the residence of 48 cultural groups.

Appreciable change from an atmosphere of tension to one of neighborhood was experienced through practicing group techniques for the overcoming of prejudices and the growth of intergroup understanding. The basic way of getting people of different ethnic, religious, and national backgrounds to think in terms of each other and their problems was by the sharing of cultural heritages through "the Neighborhood-Home Festival, a method of spontaneous group conversation around universal themes with the participants matching their personal memories in regard to changes of the seasons, food, work, storms, etc. Such songs, dances, and games are interpolated as are suggested by the conversation."

This manual includes much useful information on the life and customs of different cultural groups, and the techniques described may be used effectively in a variety of social situations.

In a land of great racial and cultural mixture there are, today, people "ranging all the way from grandmothers to war brides. These people need not only to be integrated into our neighborhood life but they also have important contributions to make to our ongoing American culture."

To date, "Americans All" is a popular slogan partially and inadequately realized. The idea presented in *Neighbors in Action* constitutes a social invention; it will become more widely operative if Americans of leadership capacity give this book their serious attention.—R. E. S.

In his new book, *Nature and Human Nature* (Rutgers University Press, 1951, 175 pages, $3), Lawrence Frank skillfully summarizes recent natural science findings. He expounds the fitness and mutuality of environment and organism, describes mammalian man as being himself a portable environment (the salty blood stream), and so moves on to cultures and societies, and relates one's private psychological world thereunto. He returns, with these thoughts, finally to a discussion of the new outlook required.

All this is helpful, especially if it can reach a large audience with the conviction that a comprehensive and decisive shift all along the line is imminent and has, in fact, well begun.

From this masterly simplification does not stand out the author's convictions as to man's nature as man. The emphasis is upon pattern and organization, upon field and space-time. Is man and his society just another ingenious device, a plaything painfully helpless, as a single personality?

It is not clear as yet whether, to the circle in which one naturally includes this gifted writer, love and other cultural forces are merely part of a practical doctrine. The organism needs love, doubtless, as it needs milk or fresh air. This is good science, and at least elevates the neo-Darwinian emphasis from cold-blooded animality to mammalism. What we need now to know is the relation of all this to the superior ranges of reality, contacted by man. If love, truth, and beauty are utilitarian, then modern society is a great waste. If they are part of a superior reality, open to conscious exploration, modern society needs to know how these principles are related to each of us directly, and not through nurture alone.

Man is to love himself and his kind. Is he to love the universe? If so, for what reasons?

The new necessity, in any and every discipline, to display inter-relations among all forms of knowledge and experience, imposes on modern writers a new duty as philosophers perforce. When he speaks for himself, we need to know the teacher's cosmological ideas, and not merely his operational concepts. This is particularly true in the sciences of man. If mammalian man is an environment, what inhabits it? Or does it just walk about feigning consciousness?

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